

AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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Saturday, March 24, 1849.



INCORPORATED BY ACT OF PARLIAMENT.

NOTICE is hereby given, that an ASSESSMENT OF ONE SHILLING AND THREE PENCE PER SHARE has been levied on the STOCK OF THE UPPER CANADA MINING COMPANY—one half thereof, or Seven Pence Halfpenny per share, being payable, at the office of the Company, in Hamilton, or to Messrs. W. & J. CURRIE, Agents, Wall St. New York, on the First Day of April next, and the other half on the First day of July next ensuing. By order, J. D. BRONDGEEST, Secretary U. C. M. C.

Hamilton, 24th February, 1849.

Col. C. F. M. Garnett has resigned the office of Chief Engineer of the Nashville and Chattanooga railroad.

Extension of the Baltimore & Ohio Railroad.

TO CONTRACTORS FOR GRADUATION AND MASONRY.

PROPOSALS are invited for the Graduation and Masonry of the following described sections of this road—the sections averaging a mile in length—commencing in the town of Cumberland; Sections 1, 2, 6, 7, 8 and 10, will be let, embracing considerable rock work along the Potomac river bluffs, and the masonry of several bridges on Section st. Also all the sections from 30 to 45 inclusive, (excepting sections 43 and 44) beginning 28 miles from Cumberland, about a mile below the mouth of Savage river, and terminating at the summit of the mountain. The work upon these sections is heavy, containing much rock excavation and 2 tunnels, each about 600 feet in length, and a stone bridge of considerable size. The whole number of sections now to be let is 20. In the course of the spring and summer upwards of 30 more heavy sections will be put under contract between Cumberland and Three Forks Creek. The remaining sections between those points, and other work beyond the latter, will be let in the spring of 1850.

Specifications of the work on the 20 sections now to be let, will be ready by the 25th of March current.—They will be distributed from the company's offices in Baltimore, Frederick, Harper's Ferry, Cumberland and Washington. The proposals will be directed to the undersigned, at No. 23 Hanover street, Baltimore, and will be received until Saturday, the 28th of April, inclusive. Before making bids the line should be thoroughly examined, and the resident engineers will be in attendance thereon to give information. The most satisfactory testimonials will be demanded. The payments will be made in cash, reserving the usual 20 per cent until the completion of the contract. The most energetic prosecution of the work will be required. By order of the President and Directors.

BENJ. H. LATROBE, Chief Engineer.
Baltimore, March 14, 1849 5t.12

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phoenix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehanna river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.,
45 North Water St., Philadelphia.
March 15, 1849.

George Stark, Esq., is the Chief Engineer of Boston, Concord and Montreal railroad, instead of Wm. B. Crocker, as stated in the advertising columns of our last number.

This road which has always been a favorite enterprise of New Hampshire, has recently been extended to Meredith Village, 38 miles from Concord.

Steam Navigation.

The new steam ship *Tennessee* took her place in the *New York and Savannah Line*, (S. L. Mitchell, agent,) and sailed from this port on Wednesday last, with some forty cabin passengers, and a full freight list. The hull was built by W. H. Webb, and the engines by Stillman, Allen & Co., of the Novelty Works. On Friday last in company with several gentlemen, we took a trip in her down the harbor, made for the purpose of testing the working of her machinery.

The *Tennessee* is about the same capacity and finish as her companion, the *Cherokee*, which has, so far, proved to be the most fortunate vessel of her class, that has been upon our waters, having run to Savannah in fifty-six hours from this port. Something over one-half of the capital of the company owning these boats was taken in this city; the balance in the State of Georgia, and the enterprising people of that State evince the liveliest interest in the success of this new enterprise.

Fortunately for the success of the undertaking, the builders of the boat, both hull and engine, were not limited or restrained by any restrictions tending to cripple or defeat their plans. This boat, therefore, we regard as a fair specimen of the skill and taste of the builders. In both respects they may feel cause of gratulation. The success of the *Tennessee* we have no hesitation in saying, will confirm all that we have said, and far more.

At the time of the trip on Friday, the steamer had on board 200 tons of coal, or sufficient to perform the voyage to Savannah and return, using as she does, about 25 tons per day. While on board, we were kindly furnished with some details of her capacity, as follows, viz:

Length of main deck,..... 210 feet.
Breadth of beam,..... 35 "
Depth of hold,..... 22 "
Tons burthen..... 1250
Berths for passengers in forward and after cabins,..... 200
Freight room capable of carrying one thousand bales of cotton.

Engine 239 nominal* horse power or, as measured by the Indicator, on her trial trip, 600 horse power. The cylinder is 75 inches diameter by 8 feet stroke,

* Nominal horse power is entirely a different thing from actual horse power.—The former expresses the power of an engine with an assumed velocity of piston and limited pressure of steam.

framed of wrought iron, and finely finished; wheels of wrought iron 31 feet diameter, 8½ feet face; two boilers 30 feet long, 11 feet front; shell in rear of furnaces 9 feet diameter and double riveted throughout; engine room well supplied with pumps, including also one of Wirthington's patent steam pumps, for supplying the boilers with water, and for throwing water in case of fire, for washing decks &c.; the coal bunkers are of iron and calculated for 400 tons capacity.

In point of finish her engine certainly surpasses any one in the Cunard steamers which we have seen; and in running in the harbor on Friday, against a strong and a rough sea, not the least jar of the machinery, or tremble of the boat could be perceived. No one can appreciate the contrast between these new ocean steamers and our ordinary river and sound boats, unless they have tried them or been upon the Cambria, and the more recent steamships of the Cunard Line. The great annoyance in steamboat travelling is here entirely removed and forgotten.

This class of steam ships is already affecting freights in ordinary sailing vessels, and they are destined entirely to change the course of the freighting business. The Tennessee, though having a single engine, might safely cross the Atlantic, or run as a regular packet to Bahia and Rio Janeiro. England will soon find us following her ocean steamers in every quarter of the globe, and within the next quarter of a century. The centre of the monetary movements of the world will be transferred from London to New York. To this country, and to the city of New York in particular, these recent movements towards ocean steam navigation surpass in commercial importance any thing that has before been attempted.

☛ We learn that Alfred Kelly, Esq., the President of the Cleveland and Columbus Railroad, has completed a contract for 3,000 tons of iron, sufficient to lay the track of the first twenty-five miles.

Middletown and Berlin Railroad.

The capital stock of the Middletown and Berlin (Conn.) Railroad, \$150,000, has been subscribed, and the following gentlemen elected Directors; Ebenezer Jackson, Charles R. Alsop, T. G. Mather, W. Jarvis and Charles Woodward.

Ohio and Mississippi Railroad.

The City Council of Cincinnati, after an elaborate examination and discussion of the whole subject, agreed, a few days since, upon the draft of an act now pending before the Legislature of that state, authorising the City of Cincinnati to contribute five hundred thousand dollars towards the construction of the above road. It is to be advanced to the Company in four equal annual instalments of one hundred and twenty-five thousand dollars each, which it is proposed to raise on the bonds of the city. We have also assurances from a private source entitled to the utmost confidence, that another half million will be raised by private subscription of citizens of Cincinnati and the vicinity to the stock of this Company. Thus, it will be seen, that notwithstanding the temporary disappointment growing out of the action of the Senate of the Illinois Legislature, the Company are progressing with this work so far as securing the necessary subscription of stock for its construction.—*St. Louis New Era.*

Lowell Railroad.

The receipts of the Lowell and Boston Railroad, for the year 1848, were \$461,339 35, as follows:

Passengers.....	\$201,218 63
Freight.....	225,609 35
Mails, &c.....	7,511 36
	\$461,339 35
Running expenses, repairs, &c.....	266,515 73
Net income.....	\$194,823 62

The capital of this road is now \$1,800,000—the whole cost of construction, with double track, (including the Woburn Branch, \$46,643,) has been \$2,013,687. There is a funded and floating debt of \$59,000. The cost, therefore, is \$154,647 more than the capital and debt together. The income and expense account shows a surplus of \$179,196, which is principally invested in the road itself. The gross receipts of the road have increased from \$105,124 in 1836, gradually, to \$461,339 in 1848; the expenses, from \$75,326 in 1837, to \$268,707 in 1848; and the net profits, from \$45,829 in 1836, to \$192,631 in 1848. The dividends were 2 per cent. in 1836; 7 per cent. in 1837 and 1838, and 8 per cent. every year since. The passenger fare, reduced last June, is now 50 cts. to Lowell, 26 miles. The miles run by passenger cars last year were 174,660; number of passengers carried, 525,764; tons of merchandise, 304,570. Four fatal accidents have occurred.

Items.

A curious and melancholy fact connected with the electric light has been just communicated to us. A gentleman near Waltham Abbey, experimenting with the electric light a few days ago, having an incised wound on his left hand, touched the conductor—a copper wire, and shortly afterwards experienced an irritation, which immediately spread in inflammation to the arm. The arm became immensely swollen, and large tumors appeared all over the body and limbs. Eminent surgeons from London have been in attendance; some of the tumors were opened, and every means resorted to for the purpose of checking the poison, but without avail. We learn that the unfortunate patient lies without the least hope of recovery.—*London Mining Journal.*

War Steamers for Germany.—The steam-ships *Acadia* and *Britannia*, so celebrated in the British and North American Company's Mail service between Liverpool and the United States, have recently been purchased from that company by one of the German Governments. They are now in the Coburg Dock, Liverpool, undergoing the necessary alterations to their being converted into efficient war steamers. The passengers' saloon, on the main deck, has been cleared off, so that they will be flush fore and aft. Their armament will be of the heaviest description.—*Ibid.*

Most Wonderful Discovery.—A German zoologist, named Brandt, has published some microscopical observations upon the remains of food found by him in the cavities of the teeth of an antediluvian rhinoceros, of which the Museum of St. Petersburg possesses an entire cranium, covered with the skin. From these researches it would appear that these animals fed upon the leaves and fruits of fir trees, and that they had never lived in a tropical climate.—*Ibid.*

The Coal Trade for 1849.

As the season is rapidly approaching when the trade will open for 1849, a few remarks on the subject will not be deemed out of place.

It is generally conceded that there will be no overstock on the first of April, of any consequence in the market, probably not more than 50 or 75,000 tons, while on the first of April of the previous year the overstock was not less than 275,000 tons. The whole supply last year sent to market, was 3,089,000 tons, to which add 200,000 tons overstock from the former year, and it makes the consumption for the year ending, April 1, 1849, in round numbers, 3,289,000—add to this an increase of 150,000 tons, (which is very moderate,) and the supply required for the ensuing year will be 3,439,000 tons. Of this quantity

The Lehigh can furnish not more than.....	750,000
Delaware and Hudson Co. do.....	470,000
Pinegrove, Shamokin & Wilkesbarre, do.....	360,000

increase over 1848, 145,000 tons.....	1,530,000
Leaving for the Schuylkill Region to furnish.....	1,259,000
	3,439,000

Being an increase of about 206,000 tons over the supply furnished last year.

So far the supply this year falls short of the quantity sent to same period last year, about 25,000 tons—and when we take into consideration the disastrous state of the trade last year, which not only

checked all new improvements in the Coal Regions, but nearly all preparation during the winter, for this year's business—and the fact that the Railroad Company have not added any increased facilities to their establishment for carrying Coal to market this year, we have every reason to believe that it will keep our Collieries busy to mine, and the Railroad and Canal (with the present facilities) fully employed to carry the necessary quantity required to market.

The above is a fair and candid statement of the trade, which we commend to the attention of our Operators, before they offer their Coal for less than fair remunerating prices, not only to themselves, but to the labor of the Region also, on which the whole community is dependant for the necessities of life. All that is required is to refuse to sell at less than fair prices, and they can be obtained—there is no necessity for cutting under each other this season—all the Coal that can be mined and carried to market will be.

At the present rates of freight and toll, Red Ash Coal ought not to be sold on board at Richmond for less than \$4 per ton, and White Ash at \$3 75. This would give the operator here about \$2 12 for Red ash, and \$1 87 for White Ash, which in all conscience is low enough.—*Miners' Journal.*

Indianapolis and Bellefontaine Railroad.

We have had the pleasure of receiving the first annual report of the President of this road, Hon. O. H. Smith, to the Directors. It is designed to connect the capital of Indiana with the Sandusky and Cincinnati Road, at Bellefontaine. The distance between these two points is 140 miles; 83 of which is in Indiana. The character of the work, the estimated cost of the road, and its business prospects, may be seen from the following extracts from the report.

The highest grade required at any point per mile may be only thirty feet. The average grade of the whole line will be about 13½ feet per mile. The whole bridging of the line is estimated at \$18,689. The graduation and bridging of the whole line will cost per mile \$2,026. The superstructure of the line prepared for the flat bar will cost \$1,856 per mile, prepared for the T rail it will cost \$1,674 per mile. The whole line ready for the T rail will cost \$307,100. Ready for the flat bar it will cost \$328,116. The cost of the T rail on the road per mile, at present prices of \$45,00 per long ton at New Orleans, allowing the weight to be sixty pounds to the yard, will be \$500. The cost of the flat bar at the same prices per mile, will be \$2,000. The whole cost of the eight-three miles with the T rail ready for the cars, will be about \$722,100, or \$8,700 per mile, and the whole cost of the line with the flat bar will be about \$494,084, or \$5,953 per mile.

The first section of the road, from Indianapolis to the Falls of Fall Creek, about twenty-six miles, has been run on a straight line for about twenty-four miles, with easy curves at each end, and has been finally located by the Board, except the link of about one mile next to Indianapolis, which was reserved until the Depot grounds should be selected, and the Depot finally located. The link has since been run.

With the stock already taken, and the means upon which we can reasonably rely, we have no doubt but that we shall, in the coming season, come fully up to the amount necessary to prepare the whole line for the iron rails. We propose to let the graduation of the first section about the first of next month, to be completed in six months from the first of May, the time the present contracts will expire, and to let the balance of the line, so soon as it can be prepared by the engineer, finally located, and the special stock in the counties which it runs shall be taken, sufficient to meet the contracts; as the general stock must, under the charter be applied to the first section until that section shall be in use.

As before stated, it is only about a year since our work was spoken of by some as among the "Stuff that dreams are made of," while other kindred works had obtained a large share of the public confidence. It is not, by any thing that may be said, designed to disparage other works in our State; we should wish them all constructed, and to prove profitable

to the stockholders; we should feel no spirit of rivalry, or unkindness towards any of them, but we should rather be disposed to aid them all, as mutually beneficial, and while we yield a hearty assent to the position, that each and every part of our great thoroughfare must prove highly beneficial to the country, and profitable to the stockholders, we feel warranted in saying, that our link from Indianapolis to the Ohio line, must always compare favorably with any other link, in this, or any other railway. Our link in the great chain will largely combine the two essential elements of prosperity, *freight and passengers*, without which combination, few, if any railroads anywhere, not connecting large cities at short distances, have ever proved profitable, and with which any well managed railroad in the United States, must prove a good investment to the stockholders. Our road will at no distant day, intersect and receive the travel and business of the Ohio line, (our eastern terminus,) passing west, of the lines from Boston and New York, through Sandusky and Cleveland; the line from Philadelphia through Pittsburgh, the line from Baltimore through Wheeling and Columbus, and the line from Cincinnati through the Miami Valley and Greenville. At Indianapolis it will at once connect with the Madison and Indianapolis Railroad, now in complete and successful operation, and ultimately unite with the lines from Louisville, Jeffersonville, New Albany, Evansville, Lafayette, Crawfordsville, Peru, and St. Louis, through Terre Haute, while the travel and business of several intermediate connections will be thrown upon our line, but this is not all, our road will pass through one of the most fertile agricultural, and especially pork and wheat regions of country in the west, from one end to the other, embracing the Fall Creek, White River and Mississinawa valleys, and broad table lands stretching out without a hill, to the Wabash river. It must also draw to it a large amount of the business and travel of the Wabash Valley at all times, and especially so, when the canal shall not be in use, thus securing to us an immense local transporting business, and as we are not limited in our dividends by our charter, the ultimate value of stocks may be anticipated by the fact that the construction of our road will not cost over one half as much per mile as other roads have cost, that are dividing annually, from six to ten per cent. on their stock. Such is my confidence in the ultimate value of our stock, that had I the means I would willingly construct the road on private account as a safe and profitable investment of capital. I have, in this report, given some of the many reasons for this confidence and submit them to the stockholders and the public.

Canadian Affairs.

The present liberal ministry of Canada seem earnestly devoted to the cause of public improvements, and to be ever ready to give their countenance and support to all individual efforts engaged in this direction. The angry debates in the Lower House, on the question of repaying the rebellion losses, may have the effect to alienate parties so far, as to defeat for the present session any attempts to extend the aid of the colony towards the railway projects now in progress.

The ministry have called the attention of the home government to the railway schemes of Canada, as connected with IMMIGRATION—the great safety valve of British agitation.

Lord Elgin, on the 20th of December last, presented to Earl Grey, Colonial Secretary, a memorandum "on Immigration, and on Public Works as connected therewith," as agreed upon in Executive Council, which, with the reply of Earl Grey, have recently been laid before Parliament. We give below portions of this correspondence, sufficient to explain the position of this portion of Canadian affairs.

Government House, Montreal,
December 20, 1848.

My Lord—I have the honor to transmit herewith a copy of an approved Minute of Council (20th of December) with a memorandum of the Inspector General, on Immigration, and Public Works con-

nected therewith, in which various suggestions are made, as to the best mode of promoting colonization and the settlement of immigrants from Great Britain and Ireland within this province. Considerable efforts, as your lordship will observe, have been made by the government and the municipal bodies, as well as by enterprising associations and individuals, to develop the resources of the province, and extend the area for the employment of British labor. These efforts are, however, hampered by the shock which has been given to colonial credit, chiefly thro' the withdrawal of the protection which colonial produce formerly enjoyed in the British markets.—It will be for your lordship to consider whether means may not be taken, by the intervention of the Imperial government or otherwise, to encourage the introduction of capital into the province, for the execution of those great works, which afford the only practicable means of absorbing a large pauper immigration, and which in a country so rapidly advancing in wealth and population, cannot fail to prove remunerative, when a reasonable degree of prudence is exhibited in selecting them, and in carrying them out. I have, etc.,

(Signed.) ELGIN & KINCARDINE.
To the Right Honorable,
The Earl Grey,
&c., &c., &c.

(Copy.)
Extract from a Report of a Committee of the Honorable the Executive Council, on matters of State, dated 20th December, 1848, approved by His Excellency the Governor General in Council on the same day:

On a memorandum of the Honorable the Inspector General, dated 20th December, instant, on the subject of Immigration, and on Public Works connected therewith—

The committee of the executive council have had under consideration, on your excellency's reference, a memorandum from the Honorable the Inspector General, on Immigration and on Public Works connected therewith—in which various suggestions are made as to the best mode of promoting colonization. The committee of council concur in the opinion expressed by the inspector general, that loans might safely be made, on certain conditions, to commissioners incorporated under the authority of the Provincial parliament, for the construction of the public works referred to in the memorandum. The committee of council are further of opinion, that in case the imperial government should see fit to obtain the money required for the completion of these works, it would be expedient to recommend to parliament, the special appropriation of the proceeds of the sales of public lands, to the redemption of the debt so created, and the committee of council entertain no doubt that the public lands would afford ample security for such a loan.

Certified,
Major Campbell,
The Governor General's Secretary.

Memorandum on Public Works, and on Immigration as connected therewith.

This memorandum is based on the following assumptions—

1. That the mother country contains a redundant population, which it is her interest to have removed to a country where, under a system of free commercial intercourse, the products of the soil will be exchanged for British manufactures.
2. That the British province of Canada, containing as it does, immense tracts of waste land, susceptible of profitable cultivation, is deeply interested in facilitating, by every means in its power, the immigration of an industrious population.
3. That it is possible to procure English capital to promote colonization through the instrumentality either of the imperial government, or of associations of individuals in England.

After speaking of the importance of immigration to the mother country, and the landed proprietors, and the indifference of the people of England as to the place where the immigrant should find a home, the Inspector General points out the cause why, for many years past, the tide of immigration has so strongly set toward the United States, viz: "a homogene-

ous people," "good wages," a "salubrious climate" and "good land at cheap prices."

To ensure the same result in Canada, a spirit of enterprise similar to that of our people is required. This is to be fostered and built up by a judicious system of public works. He then proceeds to say:

I proceed now to consider the mode of providing for the construction of works of a more general and important character, such as railroads and canals. I have explained, I trust, with sufficient clearness, that however willing the provincial legislature may be to facilitate the construction of such works, it would not be justified, under existing circumstances, in pledging the revenue to any further extent. That revenue will not for some years, at all events, be more than adequate to meet the necessary annual expenditure, and the interest of the debt, and to provide for the sinking fund, which has been specially appropriated to the redemption of that portion of the debt guaranteed by the imperial parliament. (Section 28.)

But though for the reasons just stated, the province may be compelled to confine its efforts to the completion of the great line of ship canals, in the success of which it is so deeply interested, several works of great importance have been projected, for some of which acts of incorporation have been obtained, under which operations have been commenced. The only Canadian railroad that has yet been fairly tested, is that which connects the St. Lawrence with Lake Champlain, and it is gratifying to be able to state, it has been most successful, the dividend having been equal to those generally paid in the United States. The railroad between Montreal and Lachine has also been completed, but the shortness of the line, nine miles, and the heavy expense to which the company was subjected for property at the terminus, has been against it. Its profits, however, during the first year were, I have been given to understand, equal to about three per cent on the expenditure.

The Montreal and Portland railroad has been commenced, and has been completed as far as St. Hyacinthe, a distance of about 30 miles. This is a work of the greatest provincial importance, as it will open an extensive market for western produce, all of which will pay toll on the canals. In connection with this work may be mentioned the branch line from Quebec to Sherbrooke, which, should the railroad between Halifax and Quebec be constructed, would be almost indispensable. The improvement of the Quebec harbor is the next work to which I shall direct attention. The opening of the St. Lawrence canals is likely to cause a considerable increase of trade in Quebec, and docks and wharves are much required. The harbor of Montreal was improved some years ago by means of a loan raised through commissioners appointed by government for the purpose, and it is satisfactory to be able to state that the revenues have been amply sufficient to meet the interest. Quebec would be one of the most important points at which public works could be undertaken. Immigrants would be able to find immediate employment on landing, and would soon earn sufficient to enable them to proceed westward, if so inclined. A canal has been projected to connect the St. Lawrence with Lake Champlain, the locks to be of the same dimensions as those of the St. Lawrence canals. It is confidently asserted that this work will be undertaken by a company, under an act of incorporation. Its importance would be very great. Like the Portland railroad, it would open an immense market for western produce, all of which would pass through the provincial canals.—It is proposed to continue the railroad now terminating at Lachine to Greenville on the Ottawa. This also would be a work of very considerable importance, connecting, as it would, the capital of the province with the extensive territory of the Ottawa, which is being settled with great rapidity.

The works to which I have referred are those which have been commenced or projected in Lower Canada. I have not mentioned the Halifax and Quebec Railroad, looking on that as a great national work which must be considered separately, and not in the light of a mercantile speculation. In Upper Canada the work of the most considerable importance is the Great Western Railroad, which is intended to connect the Great Eastern and Western

Railroads in the States of New York and Michigan at the Suspension Bridge near the Falls of Niagara. This railroad would pass through one of the most fertile regions in North America, and there can be no responsible doubt but that it would be very productive. A Company has likewise been incorporated to construct a Railroad between Toronto and Lake Huron, which would connect the old Capitol of Upper Canada, now a city with nearly 25,000 inhabitants, with Lake Huron.

The cost of these works may be estimated at the round sum of £3,500,000, sterling. Great expectations are entertained with regard to their productiveness, and there can be no doubt but that the construction of all or any of them would lead to the employment of a considerable amount of immigrant labor. It is believed that, with reasonable encouragement, several of these works might be completed. The question for consideration is, how loans might be made with perfect security to the capitalist. I think that if parties in England, who are friendly to emigration, would make exertions to obtain the required capital, it might with perfect safety be lent at six per cent. to Companies incorporated by the Legislature for the construction of any of the works to which I have referred, provided such Companies should have raised and expended on the respective works one-half of the amount required to complete them. The interest on the debentures of such Companies being a preferential claim, the capitalists would be secure of receiving 6 per cent. if the profit of the capital expended should be three per cent. The profits on the American lines and on the St. Lawrence and Champlain Railroad in Canada, have been from seven to ten per cent. It appears clear, therefore, that the furtherance of an extensive scheme of Colonization may safely be combined with the profitable investment of capital. The money to be expended on the works being double the amount of the proposed loan, the employment of labor would be very considerable; and the rates of wages in Canada being high, the laborers would be able to save a sufficient sum during the progress of the works to enable them to become settlers of the land.

He then proposes the Crown Lands should be held as security, and concludes by saying:

I have not ventured to suggest in this Memorandum any plan of promoting immigration which would involve the Imperial Government, in expense. I have pointed out first, a mode by which the Province is able, through means of its waste lands, to provide for the employment of a great amount of labor. Second, I have shown that the contemplated measures of next Session, for improving the Municipal Institutions, and the system of assessing property in Upper Canada, will have the effect of stimulating the local Corporations to effect improvements either from their own resources or by obtaining loans on the security of taxes, the payment of which will be enforced by the laws of the Province. Third, I have suggested that, to facilitate the construction of certain large and important works of Provincial importance, loans might be made by English capitalists, with perfect safety, to such Companies as should have expended from their own resources one-half the amounts required to complete the respective works; and finally, I have suggested that Her Majesty's Government might be induced to promote the construction of these works, in order to facilitate the employment of immigrant labor, in which case, in addition to the security of the works themselves, the proceeds of the Public Lands of the Province might be specially appropriated to form a Sinking Fund for the redemption of the debt.

All of which is humbly submitted for the consideration of His Excellency the Governor General.

(Signed,)

F. HINCKS,
Inspector General,

Inspector General's Office,
Montreal, Dec. 20, 1848.

DOWNING STREET, January 24, 1849.

MY LORD:—I have the honor to acknowledge Your Lordship's Despatch, No. 151, of the 20th December, accompanied by an approved Minute Council, and a memorandum of the Inspector General, upon Immigration and Public Works.

2. I have read this able document with much interest, and you will assure the Members of your

Executive Council of the earnest desire of Her Majesty's Government to promote the success of any measures which may be adopted for the improvement of Canada, and the development of its grand national resources.

3. It is at the same time to be observed that the measures to be adopted with this view are chiefly, if not exclusively, such as the local Government and Legislature have alone the authority to carry into effect. I am ready, indeed, to believe that capital might safely be invested in the various works proposed, and in the manner suggested by the Inspector General; but it has not, I think, occupied his attention, that such advances ought rather to be made by private capitalists than by the Imperial Parliament.

4. The different measures which the Executive Council have in contemplation with the view of encouraging the investment of private capital, seem to me to be founded on sound reasons, and likely to be successful.

I am, &c.,
(Signed,) GREY.
To the Right Honorable,
The Earl of Elgin,
&c. &c. &c.

We have seen nothing in the way of encouragement to the Montreal and Portland Railway, so important as the foregoing. An endorsement on the part of the Colonial Secretary of this great international thoroughfare, will bring its claims very fully to the view of the capitalists of Europe and this country, and the intimation that the grant of aid is a matter within the discretion of the local government, will relieve the Parliament of Canada of any apprehensions of want of authority in the premises.

The Despatch of Earl Grey must however put a damper on the prospects of the Quebec and Halifax railway scheme.—It is a plain intimation that aid from the Imperial Parliament, towards colonial projects, is out of the question. The political relations between the North American Colonies and the British Government are nearly nominal.

The recognition of the doctrine of "responsible government" takes from the Governor General all the prerogatives of authority, and leaves to the people of the different colonies the entire control of every thing but the choice of their Executive head.

American Patents.

For an *Improvement in Spark Arresters*; John S. Lafitte, Baltimore, Maryland, February 1.

Claim.—"What I claim as constituting my invention, and for which I ask letters patent, is the combining with an open stack of chimney, into which an exhaust pipe projects, in the manner described, the circular flue and its partition forming the receptacle into which the sparks are driven by centrifugal action; the arrangement and construction of the parts being made in the manner and upon the principles set forth."

For an *Improvement in Car Wheels*; W. V. Manly, Albany, New York, February 1.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is the method of making cast and wrought iron wheels for railroad cars with chilled rims, by casting the hub or rim, or both, on the highly heated wrought iron connections as set forth, that these (the connections between the hub and rim) may contract in cooling with the cast iron as set forth."

For an *Improvement in the Railway Car Wheel*;—Frederick Harbach, Pittsfield, Berkshire county, Mass., Nov. 6.

The patentee says: "My improvement consists in the employment of a third circular plate, which I arrange between the circular plates, and which I cause to extend from a solid hub to the rim, and be connected to, or cast with or to, said hub and rim, in the same manner as are the other plates."

Claim.—"What I claim as my invention, and desire to secure by letters patent, is the combination of the middle plate with the two outer plates, and

hub and rim, in the manner and for the purposes set forth.

For an *Improvement in Car Wheels*; Frederick Harbach, Pittsfield, Berkshire county, Massachusetts, Nov. 6.

The patentee says:—"The nature of my improvement consists in the manner in which I make the hub, viz: with a contractible chamber, whereby I can cast or found it, and not only obtain all the advantages of a solid or cylindrical hub, extending from one of the side plates to the other, but all those of a divided hub, without any of the disadvantages of the latter."

Claim.—"I claim the improved mode of making that part of the hub which is between the two side plates of the wheel, viz: with a lateral expansion and chamber, and in other respects substantially in the manner and for the purpose specified."

For an *Improvement in Machinery for Rolling and Twisting Iron*; Horatio Ames, Salisbury, Litchfield, Connecticut, Oct. 9; English patent dated 29th July, 1847.

Claim.—"What I claim as my invention, and desire to secure by letters patent is, 1st, the method herein described, of heating iron to increase its toughness or durability for certain purposes, such as railroad bars and ties, etc., by subjecting it, while in a highly heated state, to the compound operation of drawing and twisting, substantially as herein described.

"And I also claim in the machinery described, giving to one set of rollers a rotary motion on their axis, and a rotary motion at right angles thereto, on the axis of the bar of iron, when this is combined with another pair of rollers which have simply a rotary motion on their axes, substantially as described, whereby the bar of iron, in a highly heated state is drawn and twisted as described."

For an *Improvement in Jointed Pipes for Steam, &c.*: Lewis Kirk, Reading, Berks county, Pennsylvania, Oct. 9.

The nature of this invention consists in making the pipe, which is in two parts, one sliding on the other, with the outer extremity of each part provided with two curved branches, connected by means of packed turning joints, with a vertical pipe having a closed journal at the upper end, and an open packed journal at the other, which forms the connection in one of them, with the steam chamber of the boiler, and in the other, with the steam chest of the engine; in this way the sliding of the two parts on one another, will admit of the vibration of the two carriages, towards and from one another; the packed joints of the branch pipes, with the vertical pipe, will admit of a free vibration vertically, and the turning of the short vertical pipes on the two journals, will admit of the free vibration of the two carriages, horizontally, while the union of the three will admit of vibrations in any direction; the curved branches of each part of the jointed pipe, which form connections with the vertical pipes, effectually preventing any tendency to break or strain the joints in these parts, while the connection of the two vertical pipes with the steam chamber and chest, by the two journals, effectually protect them against all tendency to break or strain.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is connecting the main pipe at each end, by means of two branches on opposite sides, when this is combined with the sliding joint in the main pipe, substantially as described, whereby the connections of the main pipe with the vertical pipes, and the vertical pipes with the boiler and engine, or other vessels to be connected, are sustained against any tendency to strain or break, and the openings or passages are retained of the same required size at all times, while the two bodies thus connected are free to vibrate in all directions."

For an *Improvement in Furnaces for Manufacturing Steel*; Simon Broadmeadow, city of New York, October 9.

The patentee says:—"My improvement in the structure consists in closing up the side flues, at the top of the coffer, and not allowing the flame to pass through them into the arch, but conducting it up each end of the coffer (through temporary flues made when building up the ends after charging the

oven) into and along the arch to the centre, over which is the stack, having a damper at the top, thus allowing the flame a greater opportunity of extending itself, and diffusing the heat more generally than by the old plan. When the fuel used in firing has partially spent itself, I nearly close the damper, by which means the heat is forced into the side or dead flues, and enables me to obtain a greater amount of heat from the same fuel, which would otherwise escape through the chimney.

Claim.—"What I claim as new, and desire to secure by letters patent, is the closing of the side flues at the top, and passing the smoke and flame through flues at each end of the oven, into and along the arch, to the centre, and thus into the chimney."

For an *Improvement in Lubricating Compounds*.—Lewis Kirk and John Dodsworth, Reading, Berks county, Pa., October 16.

The nature of this invention consists in mixing together, under a high degree of temperature, (say 500 deg. Fahrenheit's scale) whale or other oil, lard, or other like or equivalent substance, with coal tar or asphaltum, or with both.

Claim.—"What we therefore claim as our invention, and desire to secure by letters patent, is combining together, under a high degree of heat, whale or other oil, or lard, or other like or equivalent substance, with asphaltum, or with coal tar, or with both together, substantially as described, and thereby producing a compound for lubricating machinery which we find by experience, to prevent friction and heating better than any other substance or substances known to us."

For an *Improvement in Disconnecting Railway trains*.—Richard Hemming, Boston, Massachusetts, November 6.

The patentee says—"The object of this invention is to enable the brakeman or conductor of a train, to disconnect one or more cars from a train, or the whole train from the engine, at will and instantaneously, without incurring the risk or inconvenience attendant upon the present system of coupling."

Claim.—"What I claim as my invention, and desire to secure by letters patent, is an apparatus for disconnecting railroad cars, by the use of the moveable jaw, the lever, and the bolts, operating in connexion with the lever and the springs, in the manner set forth."

The Central Railway Station, Newcastle-upon-Tyne.

JOHN DOBSON, Esq., Architect.

Railway buildings ought to do much for architecture: being quite a new class of structures, erected for purposes unknown until the present age, or, we may say, the present generation, they suggest, or ought to suggest, a character of their own, and fresh combinations in design; and being generally upon an extensive scale, they afford opportunities that have hitherto been of rare occurrence. They are, moreover, especially public works—structures constantly seen by thousands and tens of thousands of persons; and might, therefore, do much towards improving the taste of the public. That they have done so, or have been calculated to do so, cannot, we fear, be asserted of them generally. In more than one instance, expression has been falsified or forfeited, by the adoption of some style intended to be reminiscent of mediævalism—of times whose spirit and whose institutions contrast very strongly with the present railway age, in which it is either our good luck or our misfortune to live. All the various modes of Gothic are very ill adapted to buildings totally different in purpose, and therefore requiring to be differently constructed from those in which such modes are exemplified. Either violence—or what is likely to be thought such—must be done to the style itself, by deviating greatly from its traditional physiognomy, or mediæval physiognomy will be in contradiction to modern purposes. The character aimed at may be well kept up; but in proportion that it is so, it will be foreign from the express occasion—for what class of mediæval structures are there that have aught in common with railway stations and termini? Is it the castellated with its feudal fortresses?—or the ecclesiastical with its churches and conventual buildings, its priories and abbeys?—or the palatial, or the collegiate, or the domestic? Is there any one of those

styles or classes which supplies what is required for railway structures as a specific class, that ought to carry with them a distinct and appropriate character of their own? The Gothic style does not readily provide open external halls or ambulatories, which, if not indispensably demanded, are highly desirable adjuncts to every principle railway station where there is a great confluence of passengers. It is only in the form of the cloister, that Gothic examples supply any accommodation of that kind; and besides that the cloister or arcade was hardly ever made an external feature, it is only one that carries with it associations that, unless it were to be greatly modified, rather unfit than all recommend it.

It will be in the recollection of our readers, that at Newcastle the great eastern trunk line of railway from London to Edinburgh is intersected by a main line of railway extending across the island, from sea to sea; that is to say, from Mayport, on the Irish Channel, to Tynemouth, on the German Ocean. The traffic of this cross line has lately been added to that of the original line from York to Berwick, by the leasing of the Newcastle and Carlisle, and Carlisle and Mayport Railways, to the York, Newcastle, and Berwick Company; and the local traffic of the great northern mining district gives employment to branches from Newcastle to North Shields and Tynemouth, to South Shields, and to Sunderland. Thus, with the despatch of the through trains, at least 130 arrivals and departures of passenger trains will take place daily at the central station; and it is to provide for this immense accumulation of traffic that the present building is required. It will readily be imagined, therefore, that the sheds and erections must necessarily be upon a scale of no ordinary magnitude. In the infancy of the railway system, no one could have ventured to predict the extent to which the inland traffic has increased; and we have, therefore, seen the great expense which has been incurred by the London and North Western and other railway companies, to obtain additional room for their principal stations, and the great sacrifice of valuable property which has in consequence taken place. The York, Newcastle, and Berwick Railway Company, however, having had the benefit of the experience of later years, have taken great pains to select a site where the necessary extent of ground can be obtained, with the most ready access to the centre of the town; and they have been fortunate enough to find a spot which, at a very reasonable cost, and with the destruction of a very few buildings, combines both of these advantages. The manner in which the junction of the northern and southern with the eastern and western lines has been effected,—and the great works required to complete the union of the whole, by means of the high level bridge over the Tyne viaduct, through Newcastle and Gateshead, from the designs of Mr. Robert Stephenson, and under the able management of Mr. Thomas Harrison, form too extensive a subject to be treated of here, and will probably be the object of a separate notice.

The identity of the central points of the great railway system of this period with the central points of the military occupation of the country by the Normans, has been in many instances, strikingly exemplified; and in none more so than York, Newcastle, and Berwick, in each of which towns the railway station closely adjoins the Castle. The station at Newcastle extends from Westmoreland-place, the ancient town house of the illustrious family of the Nevilles, Earls of Westmoreland, situate in Westgate street; takes in the site of the convent and garden of the Carmelites or White Friars, known as the Spital, for many years occupied as the Royal Free Grammar School, the *alma mater* of Lord Stowell, Lord Eldon, and Lord Collingwood; crosses the town wall and ditch at west Spital Tower, and terminates at the Forth, an open piece of ground, formerly in the outskirts of the town, and which was bequeathed by some worthy of former days to the burgesses of Newcastle, "to walk abroad and recreate themselves," a circumstance which has hitherto prevented its being built upon.

The exterior front of the portico is composed of seven arches, each 14 feet in width by 32 feet in height, divided by coupled insulated Doric columns, 29 feet in height, elevated on a basement of 7½ feet, and supporting a broken entablature and attic of the same style. The arcades on each side are for-

med of arches, of the same width as the portico, divided by coupled inserted columns. These columns, with the key-stones of the arches, support a continued unbroken entablature, without an attic. The ends of the arcades terminate in front in a niche, having coupled insulated columns on each side, supporting an entablature and low attic. The entrance to the end of each arcade is by an arch 25 feet in width, and the arcades will be covered with groined ceilings of stone, with a circular light at each intersection.

The front of the station-house facing the platform is concave, forming the segment of a circle of 800 feet radius. This form was rendered necessary by the junction of the various lines of railway at this point; and the elevation is of rubble stone, from Prudham Quarry, of a plain and bold Roman character, the doors and windows having arched heads, with moulded impostes and archivolt; and the long continued line of these circular arches, with their deep reveals, produce a striking effect.

The shed is 156 yards long, and 61 yards wide, covering an area of 14,426 yards, or about three acres. The roof is composed of iron, divided into three compartments, and supported by columns 33 feet apart, and 23 feet high from the platform to the springing of the roof. The various offices, waiting-rooms, and refreshment-rooms, front the platform, with the exception of the booking-office and parcel-offices, which extend the full width of the building.

The entrance to the shed is, from the centre of the portico, 40 feet wide, with a stone vaulted ceiling, supported by two rows of columns, which leads direct to the centre of the platform, about 120 feet square. On the right hand is the booking-office, 70 feet long by 36 feet wide; adjoining which are the two parcel-offices, the telegraph-office, lamp-room, and other rooms and offices extending westward, for the engineers, guards, porters, and other officers of the company. A house for the station-master concludes the front range of buildings to the west.

On the left of the entrance is the station-master's office, first, second, and third class waiting-rooms, (containing separate apartments for ladies and gentlemen,) washing-rooms, attendants' rooms, and other requisites. Adjoining this suite of rooms is the first-class refreshment room, 66 feet long by 33 feet wide. At one end is a distinct refreshment-room for ladies, and at the other end a corresponding room for the bar, each 15 feet by 33 feet, divided from the large refreshment-room by columns only, and forming with it one large apartment, 96 feet in length. Adjoining the bar is the second-class refreshment room, which terminates on the east the range of buildings facing the platform. The kitchens form the eastern end of the front building, immediately behind the refreshment-rooms, and adjoining the hotel; and are provided with larders, store-rooms, and servants' rooms, on the same floor, with sleeping apartments above.

In addition to the above extensive range of building, it is proposed to erect a hotel, communicating with the station, forming a separate range 190 feet in length by 66 feet in depth; to contain 70 bedrooms, with a proportionate number of other apartments; and in the basement story, tap-rooms and refreshment-rooms for servants and other persons.

The construction of this building entirely of stone, would, in any other locality, be attended with enormous expense; but the county of Northumberland affords such an abundant supply of the finest freestone, that this material becomes there not only by far the most durable, but really the least expensive. —*Civil Engineer and Architect's Journal.*

Meeting of Coal Operators.

A full meeting of the coal operators of this region, held at the American House, Pottsville, on Friday last, was organised by the appointment of Martin Weaver, Esq., as chairman, and J. G. Lawton and C. M. Hill, secretaries.

Joseph S. Silver, Esq., being called upon, stated, in a clear and satisfactory manner, the purpose for which the meeting was called—whereupon, on motion, a committee was appointed to make a report of the state of the coal trade, for the consideration of the meeting, which was read, adopted, and ordered to be printed in the papers of the borough, and in pamphlet form.—*Pottsville Emporium.*

SUBSTANCE OF THE REPORT.

The people of Schuylkill Co. have been brought to the verge of bankruptcy by a bold and novel system that was practised last year, and is again introduced this spring.

Some speculative persons entered the eastern markets in advance of miners, and by offering our coal (which they have not yet bought) at prices below what it costs us to produce it, they secure all the orders for immediate delivery.

The nature of mining requires that the daily product shall have an uninterrupted sale and removal from the mines.

Having thus all the orders in their hands, these forestallers avail themselves of this peculiarity in our business, and of our want of union for common protection against such a scheme, to alarm our smaller colliers, and thus to break down our market to suit their purpose.

In this way a barrier is created between the producers of coal and the consumers, keeping them effectually apart, which must in the end, if tolerated, be equally injurious to the interests of both parties. To put a stop at once to this unjust system, the colliers of Schuylkill county are earnestly urged to form an efficient organization without delay.

The only legitimate regulator of prices is the relation between demand and supply, with some reference also, of course, to the cost of production.

The average cost of every ton of first quality red ash coal, delivered in boat or car at Mount Carbon (coal rent and expenses fully paid, and 20 per cent. being taken as the lowest allowance that will renew machinery, mining shafts, etc.) is not less than \$21. Our heavy miners make it higher. White ash coal of equal quantity, contingencies being smaller, costs on the average 25 cents less. It is only what it brings beyond these figures that constitutes the profit of the miner.

A careful survey of the market in every direction enables us to say with confidence, that all the coal which will be forwarded from the different regions in 1849, will be required for consumption—so that none need envy his neighbor's market, nor suffer any one's blindness or necessities to regulate him in the matter of prices.

We start this spring with a market unusually bare of stock. Every department of trade and manufacture is being revived, and money is correspondingly abundant. The established order of things must be reversed, if the coal trade, upon which all others have more or less dependence, shall be the only branch of industry that is to remain depressed.

In 1848
The Schuylkill coal mines produced..... 1,714,365
Lehigh..... 680,746
Delaware and Hudson..... 437,500
Wyoming and Shamokin..... 256,627

Total product of 1848..... 3,089,238
There was an overstock from 1847, over the amount usually allowed for permanently dormant stock, which was consumed in '48, in addition to the above of not less than..... 210,762

The consumption in 1848 was over..... 3,300,000

The capacity of the same regions to produce coal for 1849, counting their means of sending it to tide water, may be confidently stated as follows:

The Schuylkill, (by railroad, 1,300,000, canal 550,000. The canal estimates itself 50,000 tons higher..... 1,850,000
Lehigh..... 800,000
Delaware and Hudson..... 480,000
Wyoming and Shamokin..... 257,000
3,387,000

It will be seen that this tonnage will furnish for the wants of this year, only about as much as was actually consumed last year. The return of vigor to general business, warrants us in expecting that the usual annual increase, which was interrupted last year, will resume its regular progression now. This regular increase in the consumption of our coal, has been 25 per cent. for several years previous to 1848, when it fell to 13½ per cent. Taking this lowest possible standard, there will be required nearly 400,000 tons over the largest quantity that

can be delivered to market, by the carrying machinery known to us, from all sources, in 1849. If the regular increase be wanted, then there will be over 700,000 tons short.

This is the true state of the market and its prospects; and its correctness is so clear that miners must at once perceive that the market is in their hands.

We invite especial scrutiny to every detail of these estimates for we are not mistaken in any important particular.

We may mention another fact that we can vouch for, and that we think should be known to the market.

From causes well understood, the red ash collieries now in working condition cannot yield as much as last year, and taking into account the lowest supposable increase of demand for that variety of coal, the supply must fall at least 130,000 tons below the demand.

Tons.
Red ash mined in 1848..... 620,000
Overstock in spring of 1848..... 50,000
Increase demand for 1849, say only..... 50,000

Required for consumption in 1849..... 720,000
The production of red ash coal this year will probably not exceed..... 590,000
The smallest deficiency will be..... 130,000

720,000

Now we may allow the greatest latitude of construction with our figures, which differences of opinion ever permit in a market so easy of judgment as that of coal, and still the certainty remains that the demand for our coal will before a month exhibit great activity, and keep at least full and animated pace with our means of supply throughout the entire season; and no miner understanding this will sacrifice his coal at this time.

JOS. S. SILVER.
GEO. H. POTTS.
JOS. G. LAWTON.

On motion of Mr. Geo. H. Potts, it was resolved that a committee be appointed by the chair to devise ways and means to prevent a repetition of the evils of last season, and to report at an adjourned meeting to be held on Wednesday, the 14th inst, at 1½ o'clock P. M. Whereupon the chair appointed George H. Potts, J. Cockill, M. Heilner, J. G. Hews and G. Bast—and on motion, Jos. S. Silver was added to the committee.

On motion of Mr. Geo. H. Potts, the following resolutions were unanimously adopted:

Resolved, That in our opinion \$2 25 per ton for red ash coal, and \$2 per ton for white ash prepared, and lump coal, at Mt. Carbon, should be the prices fixed at the opening of the season.

Resolved, That it is hereby earnestly recommended to all coal operators in our region, to unite with us in this measure, because "United we stand: Divided we fall."

Resolved, That this meeting adjourn to meet again on Wednesday next, at 1½ o'clock, P. M., to receive the report of the above named committee.

M. WEAVER, Chairman.
JOS. G. LAWTON, } Secretaries.
C. M. HILL, }

On the Analysis of Some Specimens of Hot and Cold Blast Iron.

BY F. C. WRIGHTSON, ESQ.

The specimens of iron, of which the following are analyses, were kindly furnished by Richard Smith, Esq., agent to Lord Ward, from the Coneygre iron furnaces, near Dudley. The object of the analysis was to show how far the quality agrees with what might be predicated from the composition, and also the difference produced in the composition of the iron by the cold, warm and hot blasts respectively, when smelted from the same, or nearly the same materials. The materials manufactured by the hot blast only differed in having a small proportion of an ore richer in iron added to the others; and it is probable that the essential difference in the percentage of silica contained in two, and of the phosphorus in all, is due to the effect of the hot blast. The phosphoric acid, for example, requiring a very high temperature for its reduction. Of Nos. 2 and 4, (see table below) the hot blast iron is considered much inferior, being more brittle than the others,

and requiring much longer working in the puddling furnace. No. 8 (hot blast) is also considered a very inferior iron, for, although it contains but little silica, a larger proportion of its phosphorus enters into its composition. This, however, as well as the warm and cold blast of the same number, is liked by the workmen (puddlers) on account of the yield, they being paid by the quantity produced; and this, as will readily be seen, must be greater than from the lower numbers.—*Jour. Franklin Inst.*

Analysis of 12 specimens of "Cast Iron from the Furnace;" three kinds, "Cold," "Warm," and "Hot Blast;" four qualities of each, 2, 4, 6, 8.

	COLD BLAST.			
	2.	4.	6.	8.
Silica.....	3.51	3.45	1.79	1.37
Iron.....	91.98	90.61	93.53	95.67
Manganese.....	0.49	0.91	0.95	0.35
Sulphur.....	0.99	0.30	0.39	0.36
Phosphorus.....	0.47	0.41	0.31	0.20
Nitrogen.....	.....	.....	.....	.....
Carbon.....	2.31	2.19	2.04	1.79
	100.75	97.87	99.26	99.74
	WARM BLAST.			
	2.	4.	6.	8.
Silica.....	3.09	2.89	1.33	1.57
Iron.....	92.45	91.82	94.20	95.08
Manganese.....	0.54	0.91	0.50	0.79
Sulphur.....	0.57	0.26	0.20	0.45
Phosphorus.....	0.40	lost.	0.54	0.38
Nitrogen.....	.....	.....	.....	.....
Carbon.....	1.96	2.76	2.11	2.28
	99.01	98.64	98.88	100.55
	HOT BLAST.			
	2.	4.	6.	8.
Silica.....	5.14	5.06	1.57	1.34
Iron.....	90.76	91.30	94.31	95.64
Manganese.....	0.79	0.69	0.79	0.39
Sulphur.....	1.07	0.28	0.20	0.33
Phosphorus.....	0.51	0.55	0.50	0.71
Nitrogen.....	trace.	.....	.....	0.10
Carbon.....	2.87	2.09	1.82	1.59
	101.14	99.97	99.19	100.10

Steamboat Wheels and Paddles.

The late numbers of the Journal of the Franklin Institute contains a record of a series of interesting experiments by Prof. Ewbank, for the purpose of ascertaining the best form for paddles of boats. These experiments showed conclusively that the form now in use is less adapted than many others to give speed to the boat; that the number should be such as to allow only one paddle in each wheel to be completely submerged at the same time, and that they should be as thin as possible, consistent with the requisite amount of strength. These two last conclusions will, we think, be apparent to any person who will give the matter a moment's attention. Suppose, for instance, that the wheel used was a perfect cylinder—to the rotary motion of this cylinder the water would offer but little resistance, and would communicate but a slight impulse to the boat. If then we cut out of this cylinder sections of one inch in thickness, we then have a wheel with floats, within one inch of each other. In this case the water would offer more resistance, although it would still be very slight. This resistance would increase just as the spaces between the floats should be enlarged. Of this fact we think there can be no question, consequently the thinner the paddles, or what amounts to the same thing, the greater the distance between them, provided there be a sufficient number to allow one of them to be submerged, the greater the power obtained.

It is also evident that that form of paddle which creates the greatest amount of friction in passing through the water, communicates the greatest impulse to the boat. If a paddle two feet wide and twelve feet long should be attached endwise to the wheel, it is very evident that the same speed would communicate a much greater impulse to the boat.

than it receives from the paddle as at present attached. The deeper the paddle extends into the water, the greater the power obtained. If an inch be taken off from the upper part of the paddle that is barely submerged, its effective power is reduced but in a slight degree. If the same is taken from the lower or outside of the paddle, its effective power is materially diminished. We regret that we have not room for the whole article from the Journal of the Franklin Institute upon this subject, a part of which is given below.

The last two experiments demonstrate, that the less water a paddle displaces by its volume, the more efficient it is; that all accumulation of material behind its acting face, beyond what is absolutely necessary to strengthen it, is injurious, and ought to be avoided. But how does this accord with the current practice? Oak planks are universally employed, and I have heard more than one engineer assert, that the thicker they are the better! Because, said they, if their propelling property be not enhanced, it is not diminished, and their additional weight is a positive advantage, since the heavier the wheels are, the easier they work—the more uniform are their movements.*

The "Gorgon," an English steamer, had "large wheels and little power," so she used oak or pine scantlings, 5 inches by 6, or 6 by 8 for paddles. Had her managers been aware of the true effect of thick blades, they never would adopted them with the view of economising power.

Paddle planks vary in thickness from 1½ to three inches. No sea steamers have them less than 2 inches. In the English vessels they are 2½; in others, as the *Franklin*, they are 2½; in some of the largest class they are three. The *Atlantic* and *Pacific*, each of 300 tons, now building for the Collins' Line, are each of them 3 inches. The former is to have 28 blades; hence, united, they will form a solid mass, seven feet thick, in each wheel—just one-fifth of its diameter! They are to be 12½ feet long, by 34 inches; those of both wheels will, therefore, contain nearly 500 cubic feet of timber, and must displace that enormous volume of water at every revolution, by their submersion alone!—and as we have seen, not only uselessly, but with a serious retardation of the vessel's headway, and waste of her motive power.

The wheels of the *Pacific* are to be 36 feet in diameter; each will have 30 blades, 11½ feet by 3 feet; the solid contents of her paddles will, therefore, equal 517 cubic feet. Her loss from the same source will, therefore, be greater. In every revolution of each wheel, her paddles will lose 7½ feet of effective stroke, and those of the *Atlantic* 7 feet! Those of the ocean steamer *United States* are 2½ or 2½ inches thick; they are 36 in number, but they are "split," and attached on both sides of the arms, there are really 72. They certainly diminish the effective strokes of her blades, from 10 to 15 feet, in every turn of her wheels, startling as the assertion is.

Has the attention of engineers ever been turned this way? Or have they forgotten, that a volume of water equal to that of the boat's paddles, and every inch of material submerged with them, is neutralised as a resisting medium, as often as it is displaced by their immersion;—that water is to them what steam is to pistons—the more space the latter occupy in cylinders, the shorter becomes their stroke because metal then takes the place of steam; the object is to be moved crowds out the mover. Thick-

* As a further indication that the value of thinness of blades, and of their disincumbrance from every pound of material extraneous to their functions as propellers, has not hitherto been appreciated, it may be remarked, that the same language was repeated in my hearing thus:—"A few tons of wood in the buckets do no harm, if they do no good; they add weight to the wheel, which is desirable, and their only disadvantage is, the additional load on the boat." I believe this is the general, if not the universal, opinion of engineers. But the experiments just referred to, teach us that, if a wheel require loading, the load should be attached to those parts of the arms that revolve above the surface. They cannot enter the water without becoming drags on the blades.

en the piston till it fills its cylinder, and the motive agent being wholly kept out, all motion ceases.

It is much the same with the paddles of a wheel. Let them fill up 1-10, 1-8, or 1-3 of the circles they describe, and in those proportions they lose their virtue, because in the same proportion they displace or push aside the fluid agent on which their worth depends.

The *Atlantic* will lose seven feet stroke in every turn of her wheels. I leave to mathematicians to determine, how many more miles an hour she would make, if the loss were reduced to seven inches, by using ¼-inch iron in place of 3-inch plank.

There are several interesting questions about paddles that yet require solutions, but as respects their thickness, there is no mean to seek; the thinnest is the best under all circumstances—thin were it possible, as a lamina of mica. The only question is, What material will supply the thinnest sheets to resist the pressure they are to oppose? Plates of steel of pine, will yet be adopted.

To one remark, an examination of some steamers' wheels adds force. The accumulation of bolts, nuts, clamps, straps, stays, and other things, on, and about the backs and faces of paddles—sometimes even to bolting a new plank, or part of one, over an old one—show that those who heap on matters of the kind are not aware how much the efficacy of blades are thereby diminished. They forget that they should be thin and smooth as plates of glass, and that every inch of matter introduced between them is an evil. It is impossible to view the disjointed, broken, patched up slabs of some vessels, without exclaiming, "What a saving of power, and increase of useful effect, would not the substitution of a suitable sheet of metal for each accomplish!"

Number of paddles.—The experiments of each day convinced us that, so far as propulsion is concerned, the fewer the paddles, the faster went the boat, so long as one at each wheel, or an area equal to the face of one, was kept in full play. A greater number in the water merely cuts it into slices, throws them into commotion and diminishes the resistance they should oppose to the blades. As a further elucidation of this fact, we tried, at the suggestion of Mr. B., four blades, 7 x 14, against the eight test ones, 7 x 7. The smaller number had a decided advantage over the greater, and the cause was visible: they had a full sweep, through an unbroken, undisturbed mass of fluid, and consequently produced, unabridged, their legitimate effects; while those on the other wheel—unusually small, (½ or ¼) as their number was, compared to those on the wheels of steamers—following so quickly in the wake of one another, threw it into an uproar, causing eddies, whirlpools, and counter currents, and thus interfering with each other, necessarily produced inferior results.

We thought 8 of fig. 4 would be equally valuable as 24 of fig. 3, but the construction of our wheels prevented us from instituting a series of similar comparisons.

The number of paddles now employed is generally greater than formerly. For large vessels, 28 are usual; some have 24 and others 32. The English rule, said to be a good one, is adhered to by many American engineers, except when circumstances require a deviation. By it, there is a paddle for every foot of a wheel's diameter, which makes them stand three feet apart; there are boats in which they occur every two feet.

One object of their multiplication is to equalise the jar of their striking the water, by increasing the number of blows. With the same view, they are often split through the middle, lengthwise, and the inner half—that next the shaft—removed, to the opposite side of the arm. All the British steamers have their blades thus arranged. The *Hermann*'s 28 were thus made into 56; their efficacy was found to be reduced about 9 per cent. The value of the upper or inner has been ascertained to be about the same, for, when wholly removed, the lower portions have proved within 10 per cent. as effective as before. The blades of the *United States* are split, and disposed as in the figure. Had the attention of engineers been led to it in the early days of steaming, the popular plan of avoiding the evil at the expense of a greater, would not have been sanctioned so long.

I observed the blades of the last named steamer, a week after her recent return from Europe. Seven

were submerged, or fourteen, if those on both sides of the arms be counted. She sailed on the 4th inst., for New Orleans, with eight (or sixteen) under water. The *Cherokee* left on the 1st inst., for Savannah, with six of her undivided blades below the surface. The *Washington* came on the 6th inst., from Bremen, with five similar ones fully immersed on each side—four full ones, and the halves of two others. The largest of our Sound and River boats have equal, if not greater numbers under. The *Vanderbilt*, 1250 tons has five or ten halves immersed in each wheel when lying at her dock, and without passengers on board. The *Isaac Newton*, 1200 tons, has similar wheels, and the same number of blades under water at once.

Arms of Wheels.—The practice of making the arms of paddle wheels of uniform, or nearly uniform, dimensions throughout, is also wrong. They may, without diminution of strength, be reduced towards their extremities, and ought to be, since every inch of surplus material submerged in them, detracts from the work done by the blades. They should taper outwards, as Nature tapers the radial ribs in her propellers.

Coating Paddles with Materials that Repel Water.—If any substance can be found, durably to prevent paddles from being wetted, they would then carry over less water with them. We coated one set with grease, suet, and while the water streamed uniformly over the faces of others, it adhered only in narrow streaks to these.

The lessons which the foregoing experiments teach us are:—

That, to render paddles of steamers more effectual, they ought to be fashioned, as far as circumstances sanction, after models furnished by Nature, so as to conform to her general practice of contracting surface when resistance is of little avail, and extending it when the latter is greatest—to give the largest portions of blades the longest strokes.

That the fewer the paddles on a wheel the better, provided one be always kept in full play;—and hence, that it would be more advantageous to point, or fork them, as proposed, to evade the jar of their striking on the surface, than so perniciously to split and multiply them, as is the popular practice.

That smooth and thin metallic plates should be substituted for the usual massive water-soaked planks. (At present, perhaps, nothing better than boiler plates, galvanised, could be adopted.) That bolt-heads, nuts, cleats, straps, and every other projection, upon or about them, should be provided against. That the arms of wheels ought to be reduced to their outer extremities, and the immersion of all superfluous material carefully avoided. That, when wheels require balancing, or their momentum to be increased, the weights should be attached to the arms above the surface of the water.

To coat paddles, and parts that plunge with them, with varnish or other substance that repels water, that the fluid, instead of being dragged up in volumes by them, may roll from them, as from the backs of diving birds.

Note.—Since the above paper was written, I have seen in the Journal of the Franklin Institute, for February, 1842, (3d series, vol. 3, p. 102,) an extract from the Civil Engineers and Architect's Journal, for October, 1841, by which it appears that Mr. Rennie was led, by his experiments, to substitute the diamond-shaped paddle for that of the ordinary form. It is there stated, that "after a great variety of experiment, he found that the paddle wheel of one-half the width and weight, and with trapezium floats, was as effective in propelling a vessel, as a wheel of double the width and weight, with the ordinary rectangular floats." This agrees very well with our own results. Mr. Rennie states that the Admiralty had permitted him to fit H. M. ship *African* with these wheels, and he had perfect confidence in the success of the experiment; but I have not been able to find any account of the results of this trial upon a large scale.

Measures have been taken to secure by patent, the improvements developed by the preceding experiments.

Such seem to be the correct theoretical views upon this subject, as to the mode of obtaining the greatest amount of power. How far they are to be modified and controlled in their application can only be determined by actual experiment. In this

as in all cases of application of power, respect must be paid to antagonistical laws or principles, and the correct result or practice is only obtained when all these principles exert their legitimate influence. Speed is very desirable, but it may be purchased at too great costs.

AMERICAN RAILROAD JOURNAL.

Saturday, March 24, 1849.

Railroad Iron.

Manufacture in the United States.

From January 1st, 1848, to March 1st, 1849, 967 miles of new railway were opened for public travel in the United States. The average weight of rails used, including the necessary turnouts, and side tracks, may be safely put down at 100 tons per mile. Much of this iron was contracted for during the period of high prices in 1847, and the prices paid will average at least \$65 per ton, including all charges, or the contract prices of August and September, '47, for ordinary English rails. Contract prices for rails of American manufacture, deliverable in the early part of 1848, were somewhat above that sum at the time. According to this estimate, the cost of railway bars alone for this 967 miles of new road is equal to \$6,285,500.

In addition to this expenditure for rails, several roads have been re-laid with a new rail, of greater weight and more approved pattern, probably requiring a further outlay of more than \$1,000,000, after deducting the value of the old rails taken up.—There have also been extensive shipments of rails into the country during the past year, now on hand and ready for use, but not laid down. The prices paid for this iron will average as high as \$60 per ton, though we have heard of contracts made as low as \$52 and \$47 for small portions of it—and we may safely estimate the expense of the railroad iron used, or imported into the country in 1848, as representing an amount of money equal to eight millions of dollars.

The price of iron declined so rapidly in England from August, 1847, to the close of the year 1848, that contracts were made with responsible English houses for rails, in December and January last, at \$42 50 per ton, deliverable free of charge at our own ports. Since then, there has been a rapid advance in iron, more especially in the price of rails—so much so, that orders are very sparingly taken by English manufacturers at the present time.

A large portion of the roads opened in 1848 were undertaken at the time of the high prices of 1845 and 1846, when contracts were freely made at prices as high as \$80 per ton. The estimates for iron for these new roads generally in 1845 and 1846 and the early part of 1847, were as high as \$75 per ton.—The companies who have purchased and laid down their rails, during the time that prices have so rapidly receded, have been enabled to complete their roads at sums considerably below their estimates, though many of them would gladly have waited to take advantage of this depreciation, could they have foreseen the result. All history, and all experience, however, concur in showing, that the period of the lowest point of depression in the price of railroad iron is far from being the most favorable time in which to construct railroads. A remunerating price to the manufacturer is desirable, if not essential, to the general prosperity of the country, and this state of things is rarely found, when any one important branch of business is seriously depressed.

The duty upon iron since the railroads of this country were commenced has been as follows:

1832-3.....	\$30 per ton.
1834-5.....	27 "
1836-7.....	24 "
1838-9.....	21 "
1840-1.....	18 "
1842 (6 months).....	14 "
1842 (July and August).....	7 25 "
1842 to Dec. 1, 1846.....	25 "
1846 to present time...	30 per cent. <i>ad valorem</i> .

Under the present tariff, the duty has been changed from *specific* to *ad valorem*.

Under the tariff of 1832, or from 1832 to 1842, the duty on railroad bars was remitted by the United States, after the same were laid down and put into actual use for a certain period of time. This was generally acceptable to the iron interest of this country at the time, as the capital of this country requisite to the rolling of rails, was not thought to be equal to the undertaking. At the time of framing the tariff bill of 1842, an attempt was made to insert a similar provision for the remission of the duty on railroad iron. This was successfully resisted by the iron interest, and under the tariff of 1842 the manufacture of rails was commenced with good assurances of success. The high duty checked importation into this country, and in 1842 and 1843 iron declined in England to the lowest point ever known in the history of trade. With the revival of business, railway schemes, both in Europe and the U. States, were rapidly developed—prices of iron advanced in 1845 more than 100 per cent. above the prices of 1843. In 1844 the business of rolling rails was commenced by the *Montour* company, at Danville, Pa., upon an extensive scale. This should be regarded as the commencement of the manufacture of railroad iron in the United States, as an established branch of industry—though rails had been made to a moderate extent by the *Tredegar* works at Richmond, Va., as early as 1837, during a period of high prices in England; and railroad iron was also made by the *Great Western Iron Company*, on the Alleghany river, in the year 1842. Still the manufacture of rails could not be said to have been fairly established till after the passage of the tariff act of 1842.

Before the close of the year 1847, the following establishments had become engaged in the manufacture of rails principally—new works got up with this view, and chiefly for this purpose, viz:

Pembroke Iron Co.....	Pembroke, Maine.
South Boston Iron Co.....	Boston, Mass.
Massachusetts Mill.....	" "
Tremont Mill.....	Wareham, Mass.
New England Co.....	Providence, R. I.
Troy Rolling Mill.....	Troy, N. Y.
Trenton Iron Co.....	Trenton, N. J.
New Jersey Iron Co.....	Boonton, N. J.
Mount Savage Co.....	Allegheny Co., Md.
Ellicotts Mills.....	Baltimore, Md.
Montour Co.....	Danville, Va.
Phenix Mill.....	Phenixville, Pa.
Wyoming.....	Wilkesbarre, Pa.
Moore & Hoover.....	Norristown, Pa.
Lackawana.....	Luzerne Co., Pa.
Safe Harbor.....	Lancaster Co., Pa.
Great Western Iron Co.....	Pittsburgh, Pa.
Seibert & Wainright.....	Philadelphia, Pa.
Hunt's Mill.....	" "
Tredegar Co.....	Richmond, Va.

Some of these mills could produce, when in full blast, from 600 to 800 tons per month, and would average probably in the aggregate an amount equal

to 500 tons per month, or 100,000 tons per year, sufficient to lay 1000 miles of road. The capital embarked in these works was at least \$6,000,000, employing directly more than 4000 laborers, beside the numerous class of other persons dependent upon them, in some form or other, for employment. The competition, which was just coming into full play, would have brought the price of American railroad iron to as low a point as \$55 per ton, before the close of the year 1848, independent of any operating causes from abroad. The lowest price at which contracts of any considerable amount for American rails were taken, was \$60 per ton, made by Messrs. Reeves & Buck, of Philadelphia, for the Pennsylvania (Central) railroad.

The Trenton Mill, belonging to Peter Cooper, Esq., of this city, and the New Jersey Iron Co., at Boonton, N. J., have just finished up their contracts for rails for the Hudson River railroad, at \$67 50 per ton. With these exceptions, we believe, the manufacture of rails was suspended in this country, at any rate, in all cases except where previous contracts were required to be filled.

Several of the companies failed outright, and their concerns were closed by a sale of the property.

Had the duty of 1842 remained, or a *specific* duty imposed, equal to 30 per cent. *ad valorem*, at the time the tariff bill of 1846 was passed, most, if not all, these works would have been in successful business at the present time. The fluctuating scale of the *ad valorem* system, and the substitution of fictitious prices in foreign invoices, has involved the entire manufacturing industry of this country in the consequences resulting from the overthrow and ruin of credit abroad during the past year.

Could these consequences have been foreseen, the tariff of 1846 could not have been passed.

We believe all parties now agree in saying that our tariff should be so framed as to protect our own industry and capital against the fluctuations of foreign markets. Without some assurance of this, no enterprise is for one moment safe against the ruinous effects of foreign importations forced upon our markets from the disturbed and distracted condition of the affairs of Europe.

Some symptoms of a revival of the business of the manufacture of rails in this country, are beginning to appear. The railroad companies, or some of them, are just finding out that the importations of rails the past year, has given them iron of a quality inferior to that of our own manufacture. It is only the lowest grade of iron that has filled the contracts at the cheap prices of the past year. A preference is now given to rails of American manufacture varying from \$5 to \$7 per ton.

The importation of rails into the United States during the year 1848, will probably be found to exceed 80,000 tons, and the orders now outstanding to be of an equal amount, to arrive in 1849.

Baltimore and Ohio Railroad.

Our readers will see by an advertisement in another part of our Journal, that after a long pause, this road has commenced a new movement, which is to carry it forward to the waters of the Ohio; thus ensuring the completion of this great work, so important to the State of Maryland, the city of Baltimore, and to the commercial interests of the whole country. Baltimore is especially interested in the completion of this work, as it is undeniable that she occupies a very favorable position among the Atlantic cities, to command a large portion of the trade of the west. But although she may reap the greatest advantage from the opening of this line of com-

munication between the Atlantic and the western waters, all parts of the country will be benefited by the increased facility and cheapness with which the products of different sections can be forwarded to their consumers. The manufacturers of New England, and the merchants of New York and Philadelphia have an interest in this work similar to that of the merchant or manufacturer of Baltimore, only in a less degree; and the completion of the great trunk lines of railway from the Atlantic cities to the western navigable waters, will open a new era in the internal commerce of this country, as marked as that which followed the opening of the New York and Erie canal.

The bill granting aid to the Alexandria and Valley road was defeated in the Senate of Virginia. The Legislature authorised the transfer to the town of Petersburg of its stock in the Petersburg and Roanoke road of \$323,500 to aid in connecting Petersburg with the Richmond and Danville road, and is to receive the same amount of the stock in this new road. In the above particulars our article in the last week's paper, upon Virginia Railroads, is to be corrected.

Advantages of Railways.

A contemporary remarks that travelling on roads in Massachusetts has become as familiar as riding in omnibusses, and people arrive in Boston from places at considerable distances, transact business, and depart homeward, with no more concern than one would bestow upon a walk from one part of the city to the other. One instance of this is to be noted in the fact, that in the list of members of the Legislature, fifteen Senators and ninety-two Assemblymen are set down as boarding "at home."

Vermont and Massachusetts Railroad.

The Barre Patriot, in speaking of the Vermont and Mass. Railroad between South Gardner and Orange, says:—

The whole distance is crowded with curves and arches which give perpetual delight to the eye, and present every varying scenes to the traveller as the thundering train bears him onward through the echoing hills, along whose rugged and winding bases he wonders that the construction of any other than a bridle road was ever attempted.

Between Orange and Irving a distance of only five miles, the Railroad crosses the river five times, and in two places the river has been cut off from its native channel, and now flows through new channels cut out for it through the adjoining hills.

In the same distance, the Railroad crosses the common travelled way eight times, and on the same grade, so that the traveller along the public highway has constantly to keep 'looking out for the cars while the bell rings.'

York and Cumberland Railroad.

The Harrisburgh Intelligencer has the following remarks in reference to this important enterprise:

We learn with pleasure from the President of this Company, that it is now a certainty that it will be built during the coming season. Holding, as we do, the liberal, and as we believe, the truly patriotic doctrine of opening all channels for trade as the most beneficial for the country, we must say we have always looked upon this improvement as an important one for Pennsylvania, giving an additional market to the vast valley of the Susquehanna, and creating a new demand for the products of agriculture, the mine and the forest.

The coal region above Harrisburgh will find, through this improvement, a new facility given it to supply the southern market with Anthracite. We think it will not be long before numerous cotton-mills will be established in the south on the

field of production; and having there no water power, steam must be used, and the fuel brought from the north. In such event, what point can compete with the valley of the Susquehanna, to which this road will every year add greater importance.

Boston, March 14, 1849.

The Railroad Committee, on Monday, reported on the several petitions of C. C. P. Hastings, Otis Pettie and others, in relation to the proposed Railroads in Norfolk County, which have occupied so much time for several years past. The Courier of Tuesday gives the following as the substance of the Reports:

"After a patient and laborious investigation, the Committee decided to report three bills, which, if accepted by the Legislature, they hope may settle this long contested question to the satisfaction of the greater part of persons interested. One bill incorporates Otis Pettie, Edgar K. Whitaker, and others, as the Charles River Branch Railroad Company, with a capital of \$300,000, to run from the Worcester Railroad at Angler's Corner, in Newton, or from the Brookline Branch, through Newton and East Needham, to Dover, passing near Newton Centre and Upper Falls. Another bill to incorporate Samuel Frothingham and others, as the Medway Branch Railroad Company, with a capital of \$75,000, to run from the Norfolk County Railroad in North Wrenham, through East Medway, to Medway Factory Village, with liberty to use the Norfolk County and Providence Railroad tracks, and to transfer their franchise to the Norfolk County Railroad corporation. The third bill authorises the Norfolk County road to build a branch from Bellingham towards Woonsocket, R. I.

The different routes have for several years been subjects of fierce contest before the Legislature, and of much expense to all concerned, without producing any efficient end. About all the contestants, it is said, are satisfied with the decision of the present committee, and if the Legislature coincides therewith, an end will be placed to a long and unprofitable litigation."

Montreal and Boston Railroad.

We have been favored with a copy of Mr. N. H. Baird's report of his survey—in conjunction with Mr. Gilbert, the Chief Engineer, on the Rutland and Burlington road, of the country on the frontier, with the view to determining the most favorable point of junction for the Vermont and Canadian sections of the proposed Montreal and Boston Railroad. The result of Messrs. Baird and Gilbert's labors would appear to have been highly satisfactory; they having, by taking a short detour at the frontier line, discovered a route for the road, by which every difficulty will be easily and cheaply surmounted. From the undulating nature of the land, on the Vermont frontier, considerable difficulties have had been anticipated, but by adopting the valley of Rock River, near Swanton, very easy ascending and descending grades have been obtained, not greater at any place than 20 feet to a mile. The practicability of this route is, therefore, fully established.

The Boston and Burlington Railroad, via Bellows Falls and Rutland, with which, it is proposed to unite, is now in an advanced state of progress, and it is confidently anticipated will be completed to Burlington during the present year. A charter from the Vermont Legislature has, we understand, been already obtained to extend the line (43 miles) to the Canadian Frontier, from whence it is only 25 miles, over an almost level country, to St. Johns, where it might unite with the St. Lawrence and Champlain road. The proprietors of the last named road have, however, obtained power from the Provincial Legislature, to extend their line up the north bank of the Richelieu, to Rouse's Point, there to connect with the Ogdensburgh and Boston line; while, on the other hand, an application for a charter is now before our Legislature, for the construction of a new line from opposite Montreal to Phillipsburgh. We are now in a position to judge of the relative merits of the two schemes; but, *prima facie*, we should think it very desirable that the two projects should be joined, and that the present Lake Champlain road should be extended to the Vermont

frontier at Phillipsburgh, rather than by the line contemplated; for, notwithstanding the action of the New York State Assembly, it is still doubtful whether the bridging of Lake Champlain will be permitted, and unless it is, the interruption to the line at Rouse's Point, must prove a great impediment to its utility.—*Montreal Herald*.

Virginia.

We have received a speech of James M. Laidley, Esq., of Kanawha County, Virginia, in the House of Delegates of that State, in behalf of a bill providing for the construction of a railroad from Covington, on the James River, to the head of the steam navigation on the Kanawha. This bill provided that the state should subscribe to the road, and failed by one majority. We regret it, because we believe this road to be fully as important as some of those to which aid was extended. Another year will, we think, ensure them success, and perhaps it is best for the State in the present state of the money market to postpone aid to further projects till some of the numerous ones she now has in hand are in a process of completion. The speech referred to contains much valuable information in relation to the proposed schemes of internal improvements in that State, and we quote from it the following in relation to the proposed road:

"The James river and Kanawha company in 1838 caused an accurate survey to be made of the route proposed to be occupied by the railroad now under consideration, when it was ascertained that it presented fewer obstacles than any other route, for a connection by railroad between the east and west. The engineer says, 'The result is, that upon the whole line of 138 miles, from west to east, being the direction of the heavy trade, there will be no grade exceeding the maximum of 40 feet to the mile and only 3 1/2 miles rising to that amount; and out of the residue only 11-20 of a mile as high as three feet, and all the balance not exceeding 20 feet to the mile; whilst from east to west, being in the direction of the light trade, there will be 4 1/2 miles of grades, ascending at the rate of 75 feet to the mile; 3 2-10 miles at the rate of 50 feet, and all the residue at a rate no where exceeding 40 feet per mile. From the description here given of the character of the route proposed for the railroad, it must be apparent to all that with but a single dividing ridge to overcome, and that by means of such moderate grades, and with such inconsiderable curves, it might not only challenge a comparison with, but might justly claim pre-eminence over all other lines of railroad communication, whether executed or projected, between the valley of the Ohio and the Atlantic border.' The estimated cost of the road by this survey, from Covington to Loup Creek shoals, on the Kanawha river, some 17 miles above the head of steamboat navigation, is less than \$2,500,000, a sum now more than sufficient to complete the work to the town of Charleston, if we may judge by the cost of similar works now in progress in Virginia."

Mississippi and Ohio Railroad.

The act of the Legislature of this State authorising the city of St. Louis, in her corporate capacity, to subscribe half a million of dollars to the stock of this company having been received by the Common Council, his Honor the Mayor has, by virtue of one of its provisions, issued his proclamation, designating Monday, the 2d day of April next, as the time at which the vote tax-payers of this city will be taken whether the same shall become a law. Unless a majority thus vote the bill does not become a law; and the Common Council cannot subscribe the stock. There can scarcely be two opinions, not only to the propriety, but the stern necessity that exists of this act being ratified by the unanimous vote of the citizens if possible. It will secure the construction of the road. We can assure our citizens that a strong and decided expression at the ballot box on the 2d of April next in favor of the law to which we allude will go very far towards securing the right of way for the above road through our sister State at the next session of the Legislature.

ENGINEERS.

- Arms, F. C.,**
Georgia Railroad, Augusta, Ga.
- Arrowsmith, A. T.,**
Buckfield Branch Railroad, Buckfield, Me.
- Berrien, John M.,**
Michigan Central Railroad, Marshall, Mich.
- Clement, Wm. H.,**
Little Miami Railroad, Cincinnati, Ohio.
- Fisk, Charles B.,**
Cumberland and Ohio Canal, Washington, D. C.
- Felton, S. M.,**
Fitchburg Railroad, Boston, Mass.
- Ford, James K.,**
New York.
- Gzowski, Mr.,**
St. Lawrence & Atlantic Railroad, Montreal, Canada.
- Gilbert, Wm. B.,**
Rutland and Burlington Railroad, Rutland, Vt.
- Garnett, C. F. M.,**
Nashville and Chattanooga R. R., Nashville, Tenn.
- Holcomb, F. P.,**
Southwestern Railroad, Macon, Ga.
- Higgins, B.,**
Mansfield and Sandusky Railroad, Sandusky City, O.
- Johnson, Edwin F.,**
New York and Boston Railroad, Middletown Ct.
- Jones C. F.,**
South Oyster Bay, L. I.
- Latrobe, B. H.,**
Baltimore and Ohio Railroad, Baltimore, Md.
- Morton, A. C.,**
Atlantic and St. Lawrence Railroad, Portland, Me.
- McRae, John,**
South Carolina Railroad, Charleston, S. C.
- Nott, Samuel,**
Lawrence and Manchester Railroad, Boston.
- Nicolls, G. A.,**
Philadelphia and Reading Railroad, Reading, Pa.
- Reynolds, L. O.,**
Central Railroad, Savannah, Ga.
- Roberts, Solomon W.,**
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.
- Robinson, James P.,**
Aandroscoggin & Kennebec Railroad, Waterville, Me.
- Schlatter, Charles L.,**
Northern Railroad (Ogdensburg), Malone, N. Y.
- Stark, George.,**
Bost., Cop. and Mont. R. R., Meredith Bridge, N. H.
- Trimble, Isaac K.,**
Philad., Wil. & Baltimore Railroad, Wilmington, Del.
- Tinkham, A. W.,**
United States Fort, Bucksport, Me.
- Thomson, J. Edgar.,**
Pennsylvania (Central) Railroad, Philadelphia.
- Whipple, S.,**
Utica, N. Y.
- Williams, E. P.,**
Auburn and Schenectady Railroad, Auburn, N. Y.
- Williams, Charles H.,**
Milwaukee, Wisconsin.

BUSINESS CARDS.

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No. 23 RAILROAD EXCHANGE, BOSTON, MASS.
Railroad Routes explored and surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

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PATENTEE OF THE
HERRON RAILWAY TRACK.
Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

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Railroad Iron.
THE NEW JERSEY IRON CO'S WORKS AT Boonton, are now in full operation, and can execute orders for Railroad Bars of any required pattern, equal in quality to any made in this country. Apply to
DUDLEY B. FULLER, Agent,
139 Greenwich street.
New York, October 25, 1848.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron.
THOMAS B. SANDS & CO.,
22 South William street,
New York.
February 3, 1849.

Railroad Iron, Pig Iron, &c.

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25 Tons of 2½ by 1 Flat Bars.
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100 Tons No. 1 Gartschroie.
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No. 4 So. Front St., Philadelphia.

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to
COOPER & HEWITT, Agents.
17 Burling Slip, New York.
October 30, 1848.

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. **J. F. WINSLOW, President**
Troy, N. Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N. Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

RAILROAD IRON & LOCOMOTIVE TYRES

Imported to order, and constantly on hand, by
A. & G. RALSTON,
4 South Front St., Philadelphia.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.
Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.
All orders addressed to the Agent at the Factory will receive immediate attention.
P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

Pig and Bloom Iron.

THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

T. & C. Wason,

MANUFACTURERS OF EVERY STYLE OF
Freight and Baggage Cars—Forty rods east of the depot Springfield, Mass.

Running parts in sets complete. Wheels, axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N. B. Particular attention paid to the manufacture of the most improved Freight Cars. We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Massachusetts, Railroads, where our cars are now in constant use.

SCHENECTADY LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.

THE undersigned is prepared to execute orders for Locomotive Steam Engines and Tenders; and from long experience in building, can furnish machines of most superior workmanship. The Works are very large, and conveniently situated near the line of Railroad leading to Buffalo, and can furnish Locomotive Tenders and Railroad Machinery at short notice.
E. S. NORRIS.

February 24, 1849.

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for Locomotive Engines of every size and pattern—also Tenders, Wheels, Axles, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC.,
Of any required size or pattern, arranged for driving Cotton, Woollen, or other Mills, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY,
Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Planing, Cutting and Drilling Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fish-kill Landing, or at 39 Pine street, New York.
WM. B. LEONARD, Agent.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,

PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon. Best warranted Cast Steel—square, flat and octagon. Best double and single Shear Steel—warranted. Machinery Steel—round.

Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.

Genuine "Sykes" L. Blister Steel.

Best English Blister Steel, etc., etc.

All of which are offered for sale on the most favorable terms by
WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtis & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.

Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

LOCOMOTIVE FOR SALE. (NOW RUNNING.)

A Good Locomotive Engine and Tender in good running order, for sale low. Address

E. S. NORRIS,
Schenectady Locomotive Works,
Schenectady, N. Y.

February 24, 1849.

**Direct Action Engines
FOR STEAMBOATS.
THE PATENT DOUBLE CYLINDERS,**

AND ALSO
THE ANNULAR RING PISTON ENGINES,
of Messrs. Maudslay, Sons & Field, of London, may
be built in the United States, under license, which can
be obtained of their agent.

THOMAS PROSSER, C. E.
28 Platt street, New York.

May 6, 1848.

LAP-WELDED WROUGHT IRON TUBES
for Tubular Boilers, from 14 to 15 inches diame-
ter, and any length not exceeding 17 feet—manufac-
tured by the Caledonian Tube Company, Glasgow, and
for sale by

IRVING VAN WART,
12 Platt street, New York.

JOB CUTLER, *Patentee.*

These Tubes are extensively used by the British
Government, and by the principal Engineers and Steam
Marine and Railway Companies in the Kingdom.

**Norwich Car Factory,
NORWICH, CONNECTICUT.**

At the head of navigation on the River Thames, and
on the line of the *Norwich & Worcester Railroad*,
established for the manufacture of

**RAILROAD CARS,
OF EVERY DESCRIPTION, VIZ:
PASSENGER, FREIGHT AND HAND CARS,
ALSO, VARIOUS KINDS OF
ENGINE TENDERS AND SNOW PLOUGHS.
TRUCKS, WHEELS & AXLES**

Furnished and fitted at short notice.

Orders executed with promptness and despatch.

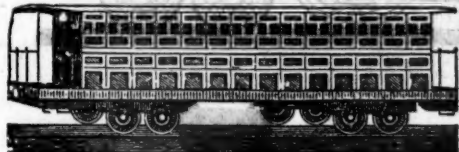
Any communication addressed to
JAMES D. MOWRY,

*General Agent,
Norwich, Conn.,*

Will meet with immediate attention.

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**CAR MANUFACTORY,
CINCINNATI, OHIO.**



KECK & DAVENPORT would respect-
fully call the attention of Railroad Companies in
the West and South to their establishment at Cincin-
nati. Their facilities for manufacturing are extensive,
and the means of transportation to different points
speedy and economical. They are prepared to execute
to order, on short notice, Eight-Wheeled Passenger
Cars of the most superior description. Open and
Covered Freight Cars, Four or Eight-Wheel Crank
and Lever Hand Cars, Trucks, Wheels and Axles, and
Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848.

444

**DEAN, PACKARD & MILLS,
MANUFACTURERS OF ALL KINDS OF
RAILROAD CARS,**

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS
OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished
at short notice; also, STEEL SPRINGS
of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,
ELIJAH PACKARD, } SPRINGFIELD, MASS.
ISAAC MILLS, } 1748

**LAP-WELDED
WROUGHT IRON TUBES**

FOR

TUBULAR BOILERS,

FROM 1 1-2 TO 8 INCHES DIAMETER.

These Tubes are of the same quality and manu-
facture as those so extensively used in England,
Scotland, France and Germany, for Locomotive,
Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

28 Platt street, New York.

THE NEWCASTLE MANUFACTURING CO.
continue to furnish at the Works, situated in the
town of Newcastle, Del., Locomotive and other steam
engines, Jack Screws, Wrought Iron Work and Brass
and Iron Castings, of all kinds connected with Steam-
boats, Railroads, etc.; Mill Gearing of every descrip-
tion; Cast Wheels (chilled) of any pattern and size,
with Axles fitted, also with wrought tires, Springs,
Boxes and bolts for Cars; Driving and other wheels
for Locomotives.

The works being on an extensive scale, all orders
will be executed with promptness and despatch. Com-
munications addressed to Mr. William H. Dobbs, Su-
perintendent, will meet with immediate attention.

ANDREW C. GRAY,

a45

President of the Newcastle Manuf. Co.

**TO RAILROAD COMPANIES AND MANU-
facturers of Railroad Machinery.** The subscri-
bers have for sale American and English Bar Iron, of
all sizes; English Bilster, Cast, Shear and Spring
Steel; Juniata Rods; Car Axles, made of double re-
fined iron; Sheet and Boiler Iron, cut to pattern;
Tires for Locomotive Engines, and other railroad car-
riage wheels, made from common and double refined
B. O. Iron; the latter a very superior article. The
Tires are made by Messrs. Baldwin and Whitney, Lo-
comotive Engine Manufacturers of this city. Orders
addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in
the order, a fit to those wheels is guaranteed, saving
to the purchaser the expense of turning them out in-
side.

THOMAS & EDMUND GEORGE,

a45

N. E. cor. 12th and Market sts., Philad., Pa.

**NICOLL'S PATENT SAFETY SWITCH FOR
Railroad Turnouts.** This invention for some time
in successful operation on one of the principal rail-
roads in the country, effectually prevents engines and
their trains from running off the track at a switch, left
wrong by accident or design. It acts independently
of the main track rails; being laid down or removed
without cutting or displacing them.

It is never touched by passing trains, except when
in use, preventing their running off the track. It is
simple in its construction and operation, requiring on-
ly two castings and two rails; the latter, even if much
worn or used, not objectionable.

Working models of the Safety Switch may be seen
at Messrs. Davenport, Bridges & Kirk's Cambridge
Port, Mass., and at the office of the Railroad Journal,
New York.

Plans, Specifications, and all information obtained,
on application to the Subscriber, Inventor and Paten-
tee.

G. A. NICOLLS,

Reading, Pa.

**MACHINE WORKS OF ROGERS KETCHUM
& GROSVENOR, Patterson, N. J.** The un-
derigned receive orders for the following articles man-
ufactured by them of the most superior description in
every particular. Their works being extensive, and
the number of hands employed being large, they are
enabled to execute both large and small orders with
promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and
Tenders; Driving and other Locomotive Wheels, Axles
Springs and Flange Tires; Car Wheels of Cast Iron
a variety of patterns and chills; Car Wheels of Cast
Iron with wrought tires. Axles of best American re-
fined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions
and of the most improved patterns, style and work-
manship.

Mill gearing and millwright work generally, hydrau-
lic and other presses; press screws; callenders; lathes
and tools of all kinds; iron and brass castings of all
descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N. J., or 60 Wall St., New York.

**IRON BRIDGES, BRIDGE & ROOF BOLTS,
etc.** STARKS & PRUYN, of Albany, New York,
having at great expense established a manufactory with
every facility of Machinery for Manufacturing Iron
Bridges, Bridge and Roof Bolts, together with all kinds
of the larger sizes of Screw Bolts, Iron Railings, Steam
Boilers, and every description of Wrought Iron Work,
are prepared to furnish to order, on the shortest notice,
any of the above branches, of the very best of Amer-
ican Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished sev-
eral Iron Bridges for the Erie Canal, Albany Basin, etc.,
—and a large amount of Railroad Bridge Bolts, all of
which have given the most perfect satisfaction.

They are permitted to refer to the following gentle-
men:

Charles Cook,
Nelson J. Beach,
Jacob Hinds,

Willard Smith, Esq.,

Messrs. Stone & Harris,

Mr. Wm. Howe,

Mr. S. Whipple,

January 1, 1849.

Canal Commissioners
of the
State of New York.

Engineer of the Bridges for
the Albany Basin.

Railroad Bridge Builders,
Springfield, Mass.

Engineer & Bridge Builder,
Utica, N. Y.

**FRENCH & BAIRD'S
Patent Spark Arrester.**



TO THOSE INTERESTED IN RAILROADS.

Railroad Directors and Managers are respect-
fully invited to examine an improved Spark Arrester re-
cently patented by the undersigned.

Our improved Spark Arresters have been exten-
sively used during the last year on both Passenger and
Freight Engines, and have been brought to such a
state of perfection; that no annoyance from sparks or
dust from the chimney of engines on which they are
used is experienced.

These Arresters are constructed on an entirely dif-
ferent principle from any heretofore offered to the pub-
lic. The form is such that a rotary motion is imparted
to the heated air, smoke and sparks passing through
the chimney, and by the centrifugal force thus acquir-
ed by the sparks and dust, they are separated from the
smoke and steam, and thrown into an outer chamber
of the chimney through openings near its top, from
whence they fall by their own gravity to the bottom of
this chamber; the smoke and steam passing off at the
top of the chimney, through a capacious and unob-
structed passage, thus arresting the sparks without im-
pairing the power of the engine by diminishing the
draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase, or obtain further information in regard to their merits.

R. L. Stevens, president Camden and Amboy railroad company; Rich'd Peters, sup't Georgia railroad, Augusta, Ga.; G. A. Nicolls, sup't Reading railroad, Reading, Pa.; W. E. Morris, pres't Philadelphia, Germantown and Norristown railroad company, Philad.; E. B. Dudley, pres't W. and R. railroad co., Wilmington, N. C.; Col. Jas. Gadsden, pres't S. Carolina railroad co., Charleston, S. C.; W. C. Walker, agent V. and J. railroad, Vicksburg, Miss.; R. S. Van Rensselaer, sup't Hart and N. H. railroad; W. R. McKee, sup't Lexington and Ohio railroad; T. L. Smith, sup't N. Jersey railroad and transp. co.; J. Elliott, sup't M. P., Philadel. and Wilm. railroad; J. O. Sterns, sup't Elizabethtown and Somerville railroad; R. R. Cuyler, pres't Central railroad, Savannah, Ga.; J. D. Gray, sup't Macon (Ga.) railroad; J. H. Cleveland, sup't of Southern railroad, Monroe, Mich.; M. F. Crittenden, sup't mo. power Central railroad, Detroit, Mich.; G. B. Fisk, pres't Long Island railroad, Brooklyn, L. I.

Orders for these chimneys and arresters, addressed to the subscribers, care of Baldwin and Whitney, of Philadelphia, will be promptly executed.

The subscribers will dispose of single rights, or rights for one or more States on reasonable terms.

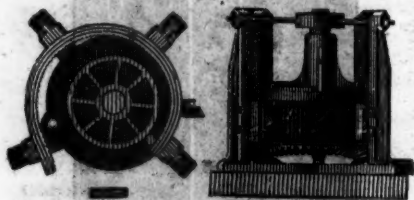
FRENCH & BAIRD.

Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shinglers, or hammermen's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y.

P. A. BURDEN.

PATENT OIL FOR MACHINERY.—The Subscribers are now prepared to supply "Devlan's Patent Oil" in any quantity; Machinists, Manufacturers, etc., are requested to call and examine the article. Certificates of its efficacy and superiority over all other oils, from several of our most extensive manufacturers are now in our possession.

ALSO,

OIL.—Bleached and Unbleached Winter, Solar, Elephant and Whale Oils; also light colored selected raked Whale Oil, suitable for retailing. For sale by

ALLEN & NEEDLES,

No. 22 and 28 S. Wharves, near Chestnut St., Philadelphia.

February 24, 1849.

ENGINE AND CAR

WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

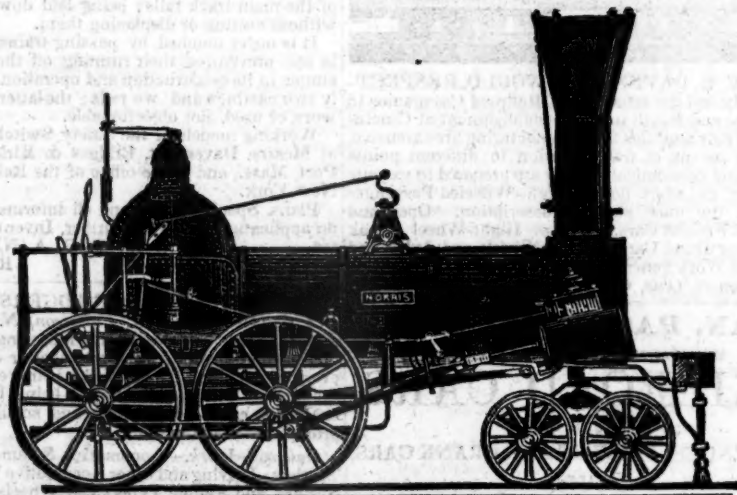
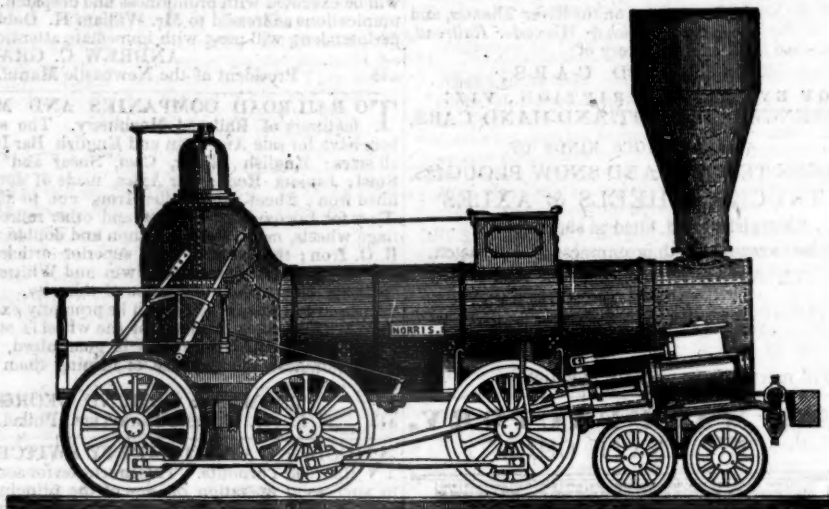
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

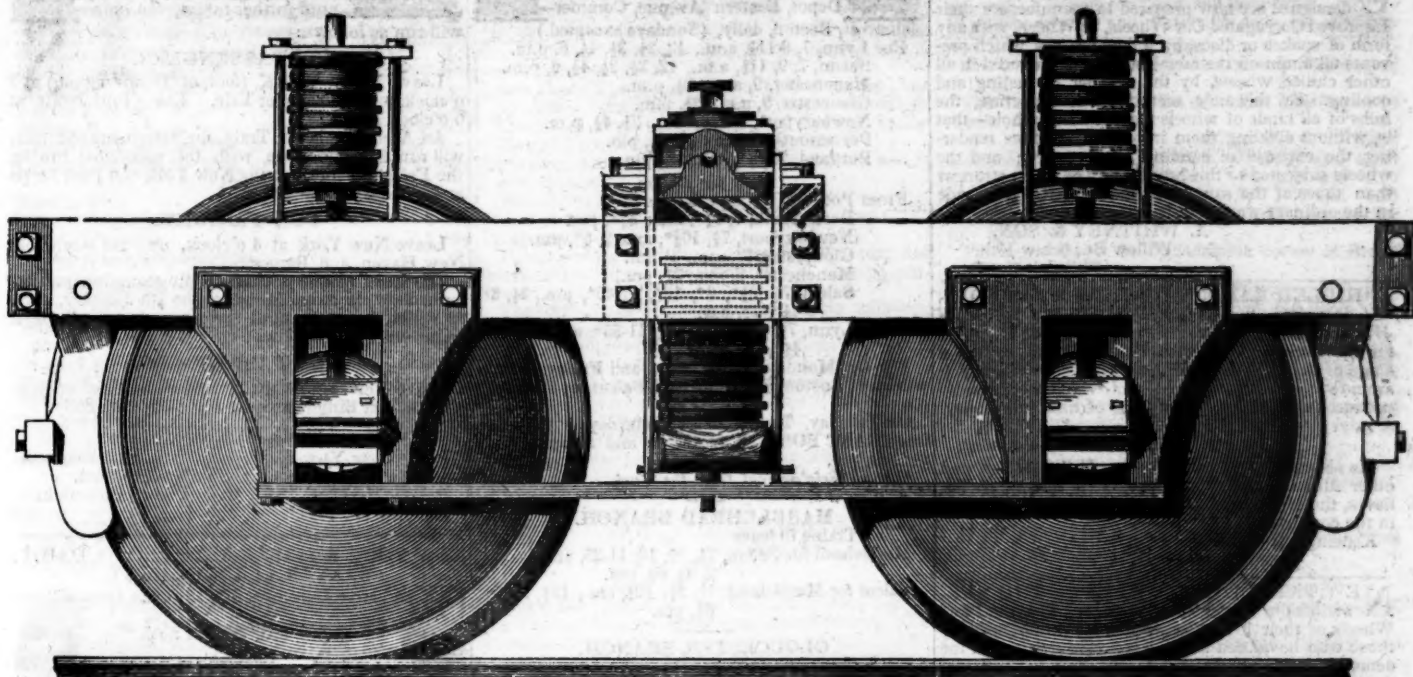
Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS.

FOWLER M. RAY'S

METALLIC INDIA RUBBER CAR SPRINGS.



THE NEW ENGLAND CAR COMPANY have introduced these Springs, and they are now in operation on every Railroad terminating in Boston, and several others in New England and the Middle States. Their qualities are well understood, or may be readily ascertained by every person interested to know them. They require no recommendation from the Company. The only known compound of India Rubber good for anything for this purpose is the Vulcanized India Rubber, invented by Charles Goodyear, of New Haven, and the application of it, and the form in which it is used, were invented by F. M. Ray, of New York. The right to manufacture and sell the substance itself for the purpose of Railroad Carriage Springs, as well as the form and application of it, are held exclusively by the New England Car Company. No other Company, or individual, has any right to sell or use it for such purpose, or has attempted so to use it in this country.

The New England Car Company guarantee the right to use the article they sell for Railroad Carriage Springs only, against all adverse rights, whether under patents or otherwise; and all persons and corporations are cautioned against a similar use of the article, when purchased of any other parties.

The Springs they sell are all manufactured in a uniform manner, and under the immediate inspection of their own Agent, and have been proved and known to answer the purpose. None have been manufactured in this country or imported from abroad besides their own, which would at all answer the purpose; and if any such should be produced, it cannot be used for Car Springs, while Goodyear's patents, and the right of the New England Car Company under them, remain in force.

The New England Car Company are now prepared to answer orders for all that may be called for, on reasonable notice, and uniform and equitable terms. They invite the most careful examination, and the severest scrutiny, into the merits of their Springs, wherever they have applied them. And if after such examination, your Company should judge it for their interest to adopt them, the N. E. Car Company would respectfully invite the patronage which they think they deserve, and are confident of receiving at your hands.

EDWARD CRANE, Agent,
Office 99 State-street.
Orders may also be left with **WM. RIDER & BROTHERS,** No. 58 Liberty-street, New York, or with **F. M. RAY, Agent,** 100 Broadway, N. Y.

The following article from the pen of Mr. HALE, the President of the Boston and Worcester Railroad, expresses his opinion of this important improvement, as published in the Boston Daily Advertiser of June 7, 1848. He says:

"Of the numerous uses to which the wonderful elasticity and durability of India Rubber renders this material applicable, we are hardly aware of one in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used, not only for the springs on which the car rests, but for the springs attached to the draw bar at each end of the car, to prevent any jar on the sudden advancement or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn, that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think than any other spring which we have ever seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months, in which we have seen the springs in operation, there is no apparent wear or diminution of their efficacy."

The above statement of Mr. Hale agrees with my own observation in all particulars.

WM. PARKER, Supt., B. & W. R. R.
June 8, 1848.

I fully concur in the foregoing statement, from practical observation of its use for the last five months, on the Boston and Worcester railroad corporation cars.

D. N. PICKERING, Jr.,
Supt. Car Building B. & W. R. R.
Boston, June 10, 1848.

The New England Car Company have introduced their Vulcanized India Rubber Car Springs on the roads with which we are respectively connected, and we fully concur with Mr. Hale in the above opinion of their character and properties.

DAVENPORT & BRIDGES, Car Builders.
BRADLEY & RICE, Car Builders.
Boston, June, 1848.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,** 142 Front-street, New York.
Orders for the above will be received and promptly attended to at this office.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, y10 near Third, Philadelphia.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine, and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; hollow Pistons for Pumps of Steam Engines etc. Manufactured and for sale by

MORRIS, TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut streets, Philadelphia.

CORROSIVE SUBLIMATE. THIS article now extensively used for the preservation of timber, is manufactured and for sale by **POWERS & WEIGHTMAN,** manufacturing Chemists, Philadelphia. Jan. 20, 1849.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

Kensington, Philadelphia Co., }
March 12, 1848. }



NEW PATENT CAR WHEELS.—THE SUBSCRIBERS are now manufacturing Metallic Plate Wheels of their invention, which are pronounced by those who have used them, a superior article, and the demand for them has met the most sanguine anticipations of the inventors. Being made of a superior quality of Charcoal Iron, they are warranted equal to any manufactured.

We would refer Railroad Companies and others to the following roads that have them in use. Hartford and New Haven, Connecticut River, Housatonic, Harlem, Farmington, and Stonington Railroads.

SIZER & CO.,
Springfield, Mass.

RAILROADS.

BOSTON AND PROVIDENCE RAILROAD.
On and after MONDAY, OCTOBER 2d, the

 Trains will run as follows:—

Steamboat Train—Leave Boston at 5 pm. Leaves Providence on the arrival of the train from Stonington.

Accommodation Trains—Leave Boston at 8 am., and 3 1/2 pm. Leave Providence at 8 1/2 am., and 3 1/2 pm.

Dedham Trains—Leave Boston at 9 am., 12 m., 3, 6, and 10 1/2 pm. Leave Dedham at 7 1/2, 10 1/2, am., 1 1/2, 4 1/2, and 9 pm.



Stoughton Trains—Leave Boston at 11 1/2 am., and 4 1/2 pm. Leave Stoughton at 8 1/2 am., and 2 1/2 pm.

Freight Trains—Leave Boston at 11 am., and 6 pm. Leave Providence at 4 am., and 7 40 am.

On and after Wednesday, Nov. 1, the DEDHAM TRAIN will run as follows: Leave Boston at 9 am., 12 m., 3, 5 1/2, and 10 1/2 pm. Leave Dedham at 8, 10 1/2, am., 1 1/2, 4 1/2, and 9 pm.

WM. RAYMOND LEE, Sup't.

NORWICH AND WORCESTER RAILROAD.
Winter Arrangement.—1848.


 Accommodation Trains 
daily (Sundays excepted.)

Leave Norwich at 6 am., 12 m., and 2 1/2 pm.

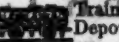
Leave Worcester at 6 1/2 and 10 am., and 4 1/2 pm., connecting with the trains of the Boston and Worcester, and Providence and Worcester railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston daily, Sundays excepted, at 5 pm.—At New York from pier No. 1, North River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6 1/2 am., from Norwich at 7 am.

Fares are Less when paid for Tickets than when paid in the Cars.  S. H. P. LEE, Jr., Sup't.

EASTERN RAILROAD, WINTER ARRANGEMENT.
On and after MONDAY, Oct. 2, 1848.

 Trains will leave Eastern Railroad Depot, Eastern Avenue, Commercial-street, Boston, daily, (Sundays excepted.)

For Lynn, 7, 9 1/2, am., 12, 2 1/2, 3 1/2, 4 1/2, 6, p.m.

Salem, 7, 9, 11 1/2, am., 12, 2 1/2, 3 1/2, 4 1/2, 6, p.m.

Manchester, 9, am., 3 1/2, p.m.

Gloucester, 9, am., 3 1/2, p.m.

Newburyport, 7, 11 1/2, am., 2 1/2, 4 1/2, p.m.

Portsmouth, 7, am., 2 1/2, 4 1/2, p.m.

Portland, Me., 7, am., 2 1/2, p.m.

And for Boston.

From Portland, 7 1/2, am., 3, p.m.

Portsmouth, 7, 9 1/2, am., 5 1/2, p.m.

Newburyport, 7 1/2, 10 1/2, am., 2, 6, p.m.

Gloucester, 7 1/2, am., 2 1/2, p.m.

Manchester, 8, am., 3 1/2, p.m.

Salem, 7 1/2, 9 1/2, 10 1/2, 11 40, am., 2 1/2, 3 1/2, 4 1/2, 7, p.m.

Lynn, 7 1/2, 9 1/2, 10 1/2, 11 55, am., 2 1/2, 3 1/2, 4 1/2, 7 1/2, p.m.

On Monday, Wednesday, and Friday, a train will leave Boston for Lynn and Salem, at 7 o'clock; p.m.

On Tuesday, Thursday, and Saturday, a train will leave EAST BOSTON for Lynn and Salem, at 10 1/2 o'clock, p.m.

* Or on their arrival from the East.

MARBLEHEAD BRANCH.

Trains to leave

Marblehead for Salem, 7 1/2, 8 1/2, 10, 11-25, am.

2, 4 1/2, 6 1/2, p.m.

Salem for Marblehead, 7 1/2, 9 1/2, 10 1/2, am., 12 1/2, 3 1/2, 5 1/2, 6 1/2, p.m.

GLOUCESTER BRANCH.

Trains leave

Salem for Manchester at 9 1/2, am., 4 1/2, p.m.

Salem for Gloucester at 9 1/2, am., 4 1/2, p.m.

Trains leave


Gloucester for Salem at 7 1/2, am., 3 1/2, p.m.

Manchester for Salem at 8, am., 3 1/2, p.m.

Freight Trains each way daily. Office 1 Merchants' Row, Boston.

Feb. 3. JOHN KINSMAN, Superintendent.

ESSEX RAILROAD—SALEM TO LAWRENCE,
through Danvers, New Mills, North Danvers, Middleton, and North Andover.

On and after Monday, Oct. 2, 1848,  trains leave daily (Sundays excepted.) Eastern Railroad Depot, Washington-st.

Salem for South Danvers at 7 45, 9, am., 12, 45, 3, 15, 6, 45, pm.

Salem for North Danvers at 7 45, 9, am., 12, 45, 3, 15, pm.

Salem for Lawrence, 9, am., 3, 15, pm.

Danvers " 9, 10, am., 3, 15, pm.

North Danvers " 9, 20, am., 3, 35, pm.

Middleton " 9, 30, am., 3, 45, pm.

North Andover " 10, am., 4, 20, pm.

South Danvers for Salem at 7 45, 8, 45, 11, 30, am.

North Danvers " 2, 45, 5, pm.

Middleton " 8, 20, 11, 10, am., 1, 40, pm.

North Andover " 11, am., 4, 30, pm.

Lawrence " 10, 35, am., 5, 05, pm.

Lawrence " 10, 30, am., 5, pm.

* These trains will not stop at Frye's Mills nor Grove-st.

JOHN KINSMAN, Superintendent.

Salem, Oct. 2, 1848.

BOSTON AND MAINE RAILROAD.

 Spring Arrangement, 1849. 

Outward Trains from Boston

For Portland at 6 1/2 am. and 2 1/2 pm.

For Rochester at 6 1/2 am., 2 1/2 pm.

For Great Falls at 6 1/2 am., 2 1/2 pm.

For Haverhill at 6 1/2 and 12 m., 2 1/2, 4 1/2, 6 pm.

For Lawrence at 6 1/2, 9, am., 12 m., 2 1/2, 4 1/2, 6, 7 1/2 pm.

For Reading at 6 1/2, 9 am., 12 m., 2 1/2, 4 1/2, 5, 7 1/2, 9 1/2 pm.

Inward trains for Boston

From Portland at 7 1/2 am., 3 pm.

From Rochester at 9 am., 4 1/2 pm.

From Great Falls at 6 1/2, 9 am., 4 1/2 pm.

From Haverhill at 7, 8 1/2, 11 am., 3, 6 1/2 pm.

From Lawrence at 6, 7 1/2, 8 1/2, 11 1/2, am., 1 1/2, 3 1/2, 7 pm.

From Reading at 6 1/2, 9 am., 12 m., 2, 3 1/2, 6, 7 1/2 pm.

MEDFORD BRANCH TRAINS.

Leave Boston at 7, 9 1/2, am., 12, 2 1/2, 5 1/2, 6 1/2, 9 1/2 pm.

Leave Medford at 6 1/2, 8, 10 1/2 am., 2, 4, 5 1/2, 6 1/2 pm.

* On Thursdays, 2 hours; on Saturdays, 1 hour later.

CHAS. MINOT, Super't.

Boston, March 27, 1849.

NEW YORK AND ERIE RAILROAD.
WINTER ARRANGEMENT.

On Monday, January 1st, and until further notice, the trains will run as follows:

FOR PASSENGERS.

Leave NEW YORK, (foot of Duane street,) at 7 o'clock, am., by steamer Erie. Leave Port Jervis at 6 o'clock am.

An Accommodation Train, for passengers and milk, will run in connection with the steamboat towing the Freight Barge, leaving New York and Port Jervis at 4 o'clock pm.

FOR FREIGHT.

Leave New York at 4 o'clock, pm., per steamboat New Haven, and Barges.

The Road will be opened to Binghamton and intermediate places on Monday, the 8th January, 1849, on which day, and until further notice, the through trains will run as follows:

FOR PASSENGERS.

Leave New York from Duane street Pier, at eight o'clock, am., and Binghamton at 7 o'clock, am., daily.

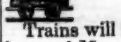
FOR FREIGHT.

Leave New York at 4 o'clock, pm., and Binghamton at 7 o'clock, am., daily, Sundays excepted.

H. C. SEYMOUR, Superintendent.
January 1st, 1849. ja3

NEW YORK & HARLEM RAILROAD, DAILY.
WINTER ARRANGEMENT.

On and after December 1st, 1848, the Cars will run as follows, until further notice:—

 Trains will leave the City Hall, New York, for Harlem and Morrisiana at 7, 9, 9, 30, 11, am. 12 m., 2, 4, 4, 15, 5, 30, pm.

Trains will leave the City Hall, New York, for Fordham and Williams Bridge, at 7 30 and 9 30 am., 12 m., 2, 4 15, 5 30 pm.

Trains will leave the City Hall, New York, for Hunt's Bridge, Underhill's and Hart's Corners, at 9 30 am., 4 15 pm.

Trains will leave the City Hall, New York, for Tuckahoe and White Plains, at 7 30 and 9 30 am., 3 and 4 15 pm.

Trains will leave Davis' Brook, Pleasantville, Chappaqua, Mount Kisko, Bedford, Mechanicsville, Purdy's and Croton Falls, at 7 30 and 9 30 am., 3 pm.

NOTICE.—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave Morisiana and Harlem at 7 20, 8, 8 50, 10 am., 12 m., 1 35, 3, 3 45, 5, 5 35 pm.

Fordham and William's Bridge at 7, 8 30, 9 50 am., 1 15, 3 25, 5 20 pm.

Hunt's Bridge at 8 20, am., 3 18 pm.

Underhill's Road at 8 10 am., 3 05 pm.

Tuckahoe at 8 05, 9 30 am., 3 05, 5 pm.

Hart's Corners at 7 55 am., 2 52 pm.

White Plains at 7 45, 9 10 am., 2 45, 4 40 pm.

Davis' Brook at 9 am., 2 35, 4 30 pm.

Pleasantville at 8 49 am., 2 20, 4 19 pm.

Mount Kisko at 8 30 am., 2, 4 pm.

Bedford at 8 25 am., 1 55, 3 55 pm.

Mechanicsville at 8 15 am., 1 45, 3 45 pm.

Purdy's at 8 05 am., 1 35, 3 35 pm.

Croton Falls, at 8 am., 1 30, 3 30 pm.

The trains for Harlem and Morrisiana leaving City Hall at 7, 9, 9 30, 11, 12, 2, 4, and 5 30, and from Morisiana and Harlem at 7 20, 8, 10, 12, 1 35, 3, 3 45, and 5 o'clock, will land and receive passengers at 27th st., 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th, and 132d streets.

The 7 30 am., and 3 pm. Trains from New York to Croton Falls, and the 8 am. Train from Croton Falls will not stop between White Plains and New York, except at Tuckahoe, Williams Bridge and Fordham.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 32d street.

Freight Trains leave New York at 6 am. and 1 pm.: leave Croton Falls at 7 am. and 2 30 pm., Sundays excepted.

NOTICE.—On Sundays the 7 am. to Harlem and Morrisiana, returning at 8 o'clock, and the 7 30 am. to Croton Falls, returning 1 30 pm., will be omitted, and the 7 am. from Williams Bridge will leave at 7 40, and Morrisiana and Harlem at 8 o'clock am.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:
 Leaves Baltimore at - 9 am. and 3 pm.
 Arrives at - 9 am. and 6 pm.
 Leaves York at - 5 am. and 3 pm.
 Arrives at - 12 pm. & 8 pm.
 Leaves York for Columbia at - 1 pm. & 8 am.
 Leaves Columbia for York at - 8 am. & 2 pm.

Fare:
 Fare to York - \$1 50
 " Wrightsville - 2 00
 " Columbia - 2 12½
 Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg - \$9
 Or via Lancaster by railroad - 10
 Through tickets to Harrisburg or Gettysburg - 3
 In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at - 5½ pm.
 Returning, leaves Owning's Mills at - 7 am.
 D. C. H. BORDLEY, Sup't.
 Ticket Office, 63 North st.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

	Between Atlanta and Dalton, 271 miles.	Between Charleston and Dalton, 408 miles.
1st class Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 18	\$0 23
2d class Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
Cotton, per 100 lbs.	0 45	0 70
Molasses per hogshead	8 50	13 50
" " barrel	2 50	4 25
Salt per bushel	0 18	
Salt per Liverpool sack	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.
 F. C. ARMS,
 44½ ly Sup't of Transportation.

THE WESTERN AND ATLANTIC RAILROAD.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur, and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.

LITTLE MIAMI RAILROAD.—WINTER ARRANGEMENT.

Change of Hours.
 On and after Thursday, November 9th, 1848, until further notice, Passenger Trains will run as follows:

Leave Depot East Front street at 9½ o'clock, am., and 2½ o'clock, p.m., for Milford, Foster's Crossings, Deerfield, Morrow, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield.
 Returning, leaves Springfield, at 2½ o'clock, and 9½ o'clock, am.

Passengers for New York, Boston, and intermediate points, should take the 9½ o'clock, am., Train from Cincinnati.

Passengers for Columbus, Zanesville, Wheeling and intermediate towns, should take the 9½ o'clock, am., Train.

The Ohio Stage Company are running the following lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 2½ o'clock, pm. Train from Cincinnati.

The 2½ pm., Train from Cincinnati, and 2½ am., Train from Springfield, are intended for the accommodation of Way Passengers only, and will be eight hours on the road.

Fare from Cincinnati to Xenia - \$1 90
 Do do Springfield - 2 50
 Do do Sandusky City - 6 50
 Do do Buffalo - 10 00
 Do do Columbus - 4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENTS, Superintendent.

The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value to that amount.

BALTIMORE AND OHIO RAILROAD, MAIN STEM.

The Train carrying the Great Western Mail leaves Baltimore every morning at 7, and Cumberland at 8 o'clock.

passing Ellicott's Mills, Frederick, Harper's Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia, and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh.

Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between these points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11, and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily, except Sundays, from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M., and 5 P. M., and 12 at night from Baltimore, and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay House. Fare \$1 50 through between Baltimore and Washington, in either direction, 4 cents per mile for immediate distances.

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.—1848.

Winter Arrangement.
 December 4th.—Fare \$4.

Leave Philadelphia 8 am., and 4 pm.
 Leave Baltimore 9 am., and 8 pm.
 Sunday—Philadelphia only at 4 pm.
 Baltimore only at 6 pm.

Trains stop at way stations. A second class car run with morning line only.

Charleston, S. C.

Through tickets Philadelphia to Charleston, \$20.

Connecting lines to Charleston leave Philadelphia, at 4 pm. daily—leave Baltimore at 1½ pm. daily.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, \$12.

Wheeling, 13.

All through tickets only sold at office Philad.

Wilmington Accommodation.

Leaves Philadelphia at 1½ and 4 pm.

Leaves Wilmington at 8 am., and 4 pm.

N.B.—Extra baggage charged for.

J. R. TRIMBLE, Gen. Sup't.

PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

Fares. Miles. No. 1. No. 2
 Between Phila. and Pottsville, 92 \$3.50 and \$3.00
 " " Reading 55 2.25 and 1.90
 " Pottsville 34 1.40 and 1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers & Freight.

Rate of Passage - \$8 00. Freight—

On weight goods generally, 50 cts. per hundred

On measurement goods 13 cts. per cubic ft.

On bris. wet (except molasses and oil) 1 50 per barrel.

On bris. dry (except lime) - 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred

On hhds. and pipes of liquor, not over 120 gallons - \$5 00 per hhd.

On molasses and oil - \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,

Gen'l Sup't Transportation.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—

and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily - \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia - 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

PATENT MACHINE MADE HORSE SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent.

Troy Iron and Nail Factory, Troy, N. Y.

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.

The subscriber is engaged in manufacturing spring steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, Agent.

Albany Iron and Nail Works.

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.

The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head.

From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of Brastus Corning & Co., Albany; Merritt & Co., New York; E. Pratt & Biddle, Baltimore, Md.



RIDER'S PATENT IRON BRIDGE.

THE RIDER IRON BRIDGE having been fully tested on the Harlem Railroad, by constant use for about eighteen months, and found to answer the full expectations of its most sanguine friends, is now offered to the public with the utmost confidence as to its great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

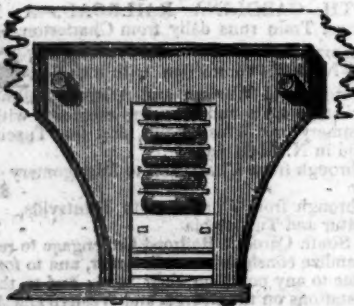
THE IRON RIDER BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, made under the above patent, at short notice, and at prices far more economical than the best wood structure, and on certain conditions, the first cost may be made the same as wood.

Models, and pamphlets giving full descriptions of the RIDER BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 74 BROADWAY, up stairs, or of W. RIDER & BROTHERS, 58 Liberty Street, where terms of contract will be made known, and where orders are solicited.

November 25, 1848.

M. M. WHITE,
Agent for the Company.

Fuller's Patent India-Rubber Springs.



THERE can now be no ground of opposition whatever to these Springs. The Commissioner of Patents has not only rejected the application for a Patent for a similar Spring, but a Patent has just been granted for an entirely new species of India Rubber, the quality of which can be surpassed by no other kind, as the experiments which have lately been publicly made, have fully proved. No extremes of heat or cold can effect it, nor will any amount of pressure permanently alter its shape. This Patent refutes the statement of the "New England Car Company" as to their sole right to use India Rubber.

The Spring (composed by alternate layers of India Rubber Discs and Metal Plates) is superior to any other form of Spring, for several reasons: It is the lightest, the most simple and most durable—there being less friction in this than in other kind; it can be regulated to any extent desired. A less quantity of Rubber is required in this form to make a good spring than in any other because each disc or ring of India Rubber is firmly supported by metal plates, and forms in itself a distinct spring—nor is any spiral spring required. The Patentee is consequently able to supply efficient springs at a less cost than any other parties can do. Purchasers are guaranteed in the use of these springs.

This spring has been used nearly four years with complete success. It is applicable equally to Passenger and Freight Cars, to Locomotives and Tenders. Bumpers and Draw Springs are always kept on hand, which merely require screwing to a car. It has lately been applied also to several kinds of Machines.

Action will be brought against all persons infringing upon these patents.

The subscriber will show Models and Drawings of the various modes of application to Cars, Machines, Omnibuses, &c.

G. M. KNEVITT, Agent.

Principal office, No. 78 Broad st., New York.
Branch office, Messrs. James Lee & Co.'s, No. 18 India Wharf, Boston.

Mr. Hale, the President of the Boston and Worcester

ter Railroad, wrote an article concerning Fuller's Springs. The "New England Car Company" take the liberty of publishing that article, omitting, however, a very important part; it is therefore given in full now, and the portion omitted by the New England Car Company is printed in italics, that the public may judge the manner in which this "company" pervert Mr. Hale's meaning.

[From the Boston Advertiser of the 7th June].

INDIA RUBBER SPRINGS FOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad.—It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it seems to be admirably adapted, and we do not learn that during that period in which it has been used, any defect has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. Each spring is composed of several circular layers of rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced into general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr. Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper."

MANUFACTURE OF PATENT WIRE ROPE
and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc. by
JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

RAILROAD SCALES, ETC.

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